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Water Quality Management Accomplishments Compendium I

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16. ABSTRACT

The Water Quality Management Accomplishments, Compendium I includes 58 brief case studies that document programs and activities, developed through WQM planning efforts, which have significant potential for improving water quality. Cases are classified as either accomplishments or performance indicators. Accomplishments indicate programs which have been formally adopted and are being implemented. Performance indicators are WQM recommended programs which have received some preliminary commitment but have not reached the implementation stage. The cases are examples of successful efforts by WQM planning agencies to achieve implementation of outputs from the 208 program.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: 9 NOV 1977

SUBJECT: Compendium on Water Quality Management Accomplishments

FROM: Swep Davis, Acting Deputy Assistant Administrator
for Water Planning and Standards (WH-551)

TO: Regional Administrators

Information Memorandum: INFO-78-10

This memorandum transmits the first Compendium of water quality management accomplishments. The Compendium presents a sample of solutions that WQM agencies have developed to deal with water quality problems, primarily municipal and industrial waste treatment management, on-lot disposal, and nonpoint source pollution. Progress in cleaning up the water was most significant in the northwestern, western, southeastern and northeastern parts of the nation.

Solutions range from facilities construction, to regulatory measures, to inspection and enforcement, and often a combination of these types of approaches is applied. In most instances, the WQM agencies coordinate but do not actually implement these solutions. Recognizing their role of formulating a process for water quality management, they worked closely with the governmental agencies responsible for protecting local waters. It is noteworthy that the 208 agencies helped establish the framework for carrying out the water quality solutions during the planning phase.

The entries contained in the Compendium are either accomplishments, denoting that implementation is taking place, or performance indicators, denoting that the solution to a point or nonpoint pollution problem has been devised and is ready to be applied. To help summarize and analyze these entries, the Compendium contains: 1) an introduction that highlights the contents, 2) a table of contents that encapsulates each item and is organized geographically, and 3) an index that is organized by subject, namely water quality problems.

We realize that this Compendium represents only some of the successes that WQM agencies have achieved. EPA Headquarters makes general inquiries to Regional staff, but we depend on the initiative of project officers and WQM agency staff in identifying and transmitting accomplishments and performance indicators. If you know of items that are not included in this Compendium, submit them for the next edition.

The Compendium will be a periodic publication of the Water Planning Division. To ensure future compilation of accomplishments and performance indicators, the Regional office and WQM agency staff must cooperate to provide EPA Headquarters with information on program progress. The Regional Office staff coordinates submissions from the WQM agencies; write-ups should be sent to the project officer, who will then forward them to EPA Headquarters. Items should be addressed to:

Ms. Terry S. Peters, Clearinghouse Coordinator
Program Development Branch
Water Planning Division (WH-554)
U.S. EPA
401 M Street, S. W.
Washington, D. C. 20460

Attachment

WATER QUALITY MANAGEMENT ACCOMPLISHMENTS

COMPENDIUM I

EPA HEADQUARTERS
WATER PLANNING DIVISION
DECEMBER 1977

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INTRODUCTION

WHAT IS THE WATER QUALITY MANAGEMENT PROGRAM ACCOMPLISHING?

People have continually asked: "What is the goal of the 208 program?" The goal is to clean up the nation's water, to reduce pollution from point and nonpoint sources so that we can fish and swim in our rivers and streams. This is an ambitious goal, and it has many implications for a local community. Now that many 208 agencies are completing the initial phase of their planning process, we can answer this question with examples of water quality management accomplishments.

This Compendium documents accomplishments that WQM agencies, assisted by private groups and local, state, or Federal governments, have produced to solve water quality problems. These accomplishments demonstrate that the WQM process has built on the following common steps:

1) identifying the problem
2) developing technical alternatives
3) proposing management arrangements
4) building support among key groups and the general public
5) obtaining political acceptance, adoption, and implementation of the preferred solution

Reaching solutions to the water quality problems identified in the Compendium also involves broader community issues of economic growth, industrial development, land use decision-making, public regulation of private enterprise, and allocation of financial resources to meet local and statewide needs. The successful water quality management planning efforts documented in this Compendium highlight the key role of the 208 agency in raising these issues, which decision-makers must resolve in choosing the solution that is to be implemented. Most 208 agencies are advisory bodies that lack the authority to resolve these issues. Consequently, they operate as catalysts, pinpointing critical water quality concerns so that the public and policymakers can consider the problems, alternative solutions, and costs and benefits of each option.

The 208 agencies always depend on outside support and actively seek that support; they never function successfully alone. In the case of every accomplishment, 208 agencies orchestrated cooperative efforts with other public agencies and private groups that effectively addressed problems from a water quality standpoint. The solutions to water quality problems illustrated in the Compendium thus reflect increased legitimacy and a larger constituency for the 208 program.

Water pollution control is a political process that varies from one geographic area and from one problem to another. The essential point of these short case studies is that 208 agencies, whatever the role they choose and whatever their involvement in the political process, have been able to move the 208 program from the technical and planning stages into program adoption and implementation.

FINDINGS AND ANALYSIS OF THE COMPENDIUM

This edition of the Compendium comprises 58 brief case studies that involve 40 water quality management agencies. Each case study represents only one part of the 208 program that an agency is conducting. In some instances, the accomplishment involves the most pervasive water quality problem confronting an area. In other cases, the agency identified a localized source of pollution that it could readily handle and, in the process, gain public support for the WQM program. None of these case studies, therefore, encapsulates the entire 208 process within a given area. Rather, they highlight portions of the program in which substantial progress has been made to improve or protect water quality.

The agencies addressed four major problem areas:

1) Nonpoint Sources
2) On-Lot Disposal
3) Industrial Point Sources
4) Municipal Point Sources

In order to implement programs aimed at solving these problems, WQM staff and political decision-makers must first deal with basic issues arising from each particular type of problem. The following series of questions pinpoint these issues in the four major areas and thus outline the problem-solving process established by each WQM program.

Nonpoint Source Pollution: Including urban storm runoff; agricultural, construction, silvicultural, mining runoff; and landfill leachate.

Important Issues:

° What is the relationship between the nonpoint source and water quality degradation?

° Which mix of corrective and preventive best management practices is most effective and acceptable?

° How should the financial burden be allocated between the public and private sectors?

° Which technical, political, and financial conditions require capital-intensive or structural alternatives and which require labor-intensive or nonstructural alternatives?

° Will implementation rely on voluntary compliance, regulatory programs, or a combination of both?

° What funding mechanisms are available at local, state, and Federal levels?

° How should impacted groups be involved in the planning process?

On-Lot Disposal

Important Issues:

- Can failing septic systems be repaired and properly maintained or must they be replaced by another form of wastewater treatment?
- Which areas in a region are suitable for on-lot disposal?
- Are collective septic systems or package treatment plants feasible alternatives to individual septic tanks?
- What are local attitudes toward growth?
- Does the financial capability exist to support a municipal wastewater treatment system?

Industrial Point Sources

Important Issues:

- What standards should be set for industrial pretreatment programs?
- How can pretreatment requirements be enforced?
- How can municipal sewage treatment systems be protected from incompatible industrial wastes?
- What kind of and how much responsibility should industries be assigned for cleaning up receiving waters?
- How can cost-effective methods of industrial treatment be developed?

Municipal Point Sources

Important Issues:

- How can cost-effective facility alternatives, in terms of construction, operation, and maintenance, be attained?
- Where should regional treatment systems be located?
- How can regional consistency in facility planning be ensured?
- How can growth be accommodated?
- How should resources be allocated between point and nonpoint source controls to achieve the greatest improvement in water quality?

Management Agency Selection

Common to all these problems is the need for a management agency with the authority and capability to ensure implementation of a solution once it is adopted. In most cases, existing agencies are being used as management agencies. In these cases, the management agency was involved in the problem solving process as early as possible. Where a new agency has been created, those governing bodies with the authority to delegate such responsibility have been involved.

SUMMARY OF THE COMPENDIUM ENTRIES

The following table summarizes the outcome of the water quality management process in 58 cases, namely the solution that the 208 agency was instrumental in formulating and the type of public entity responsible for implementation. An individual case study may deal with a single problem and a single solution, but often multiple problems and solutions are involved. The implementing agency (or agencies) identified in the table has primary and direct responsibility for carrying out the adopted program. For example, although the 201 program funds 3/4 of construction grants, the local government or sewer authority must manage the completed project and therefore is listed, while the Federal government is not.

Many of the solutions that WQM agencies have developed correspond quite closely to the problems. For example, the most common solutions to municipal point source pollution are: upgrading, expanding, or regionalizing wastewater treatment facilities and achieving closer coordination between the 201 and 208 programs. Alternatively, agricultural runoff is invariably abated by applying agricultural best management practices. Nonetheless, several general solution categories cut across a variety of problems, in particular land use regulation and intergovernmental coordination.

Implementation is handled by a range of public bodies: city and county governments for a variety of programs, sewer districts for facility-related alternatives, and soil conservation districts for agricultural best management practices. State and, to a lesser extent, Federal agencies are also involved. 208 agencies play the smallest role in implementation, because they are largely planning and advisory groups that develop rather than carry out solutions.

HOW THE COMPENDIUM WAS PREPARED

EPA Headquarters established a Clearinghouse for Water Quality Management accomplishments to gather information on how the 208 program is solving water quality problems. The short case studies in this Compendium were identified through information submitted to the Clearinghouse and supplemented by follow-up inquiries to EPA Regional Offices and/or WQM agencies.

Submissions to the Clearinghouse are classified as accomplishments, performance indicators or preliminary entries. A commitment to improve water quality resulting from the 208 program is the basic criteria used to identify the accomplishments and performance indicators included in the Compendium. An accomplishment must include an activity which has been adopted and is being implemented.

A performance indicator denotes a recommended program or activity which has received some preliminary commitment but has not reached the implementation stage. In the case of preliminary entries, either a specific program to improve water quality has not been developed, or action is not pending on a recommended program. Preliminary entries are not included in the Compendium.

Obviously, the determination of these ratings -- accomplishment, performance indicator, and preliminary entry -- is subjective and imprecise. In some instances, more detailed information can make the difference between one rating and another. Alternatively, additional effort may be required to make the transition from one category to another.

As the water quality management process is dynamic, ratings can change. Performance indicators and preliminary entries may become accomplishments. Unfortunately, accomplishments can also be "demoted" to performance indicators, if implementation is stymied due to political, legislative, or judicial actions. Accordingly, the Clearinghouse will continue to monitor and, where necessary, revise submissions to maintain an accurate picture of 208 program progress.

IMPLEMENTING AGENCIES FOR ACCOMPLISHMENTS AND PERFORMANCE

INDICATORS PRODUCED BY WATER QUALITY MANAGEMENT AGENCIES

SOLUTIONS WATER QUALITY MANAGEMENT AGENCIES	Upgrade/expand Wastewater Treatment Facilities	Install Regional Wastewater Treatment Facility	Alternative Disposal Systems (Cluster Sep Sys)	201/208 Technical/ Management Coord.	Pretreatment Requirements/ Discharge Permits	Sewer Use Ordinance	Stormwater Management Program	Septic Tank Management Program	Land Use Regulation/ Zoning, Subdivision Ordinances	Agricultural BMPs	Silvicultural BMPs	Construction BMPs	Mining BMPs	Lake Restoration/ Management	Sludge, Solid Waste Disposal/reuse	Citizen Participation	Funding Source Identified	Intergovernmental Coordination
Southern Kennebec Valley Regional Planning Commission	6,2		6		4	4			2									6
Greater Portland Council of Governments	5		6					(2,6)										6
Berkshire County Regional Planning Commission		2							2									
Montachusett Regional Planning Commission															2			
Northern Middlesex Area Commission								2						2				
Old Colony Planning Council														(2,3,6,7)				(2,3,6,7)
Southeastern Regional Planning and Economic Development District					(3,7)													
Middlesex County Planning Board									6									
Nassau-Suffolk Regional Planning Board																1		
New Castle County Areawide Waste Treatment Mgt. Planning				1*	(1,2)	(1,2)												(1,2)
South Alabama Regional Planning Commission					4													4
Central Florida Regional Planning Council	1						6									3		6,6
Leon County Planning Department							1							1		1		
Chattanooga Area Regional Council of Governments												1						
Knoxville-Knox County Metro Planning Commission	2*			2*														
First Tennessee-Virginia Development District	4,2*	4*		4*,6,2	6													4*
Dane County Regional Planning Commission										(1,5)						(1,5)		(1,5)

Southeastern Wisconsin Regional Planning Commission		4		4														
Wisconsin Department of Natural Resources	6			6				(6,1)										
Association of Central Oklahoma Governments																7,3		
North Central Texas Council of Governments	(2,4)	(2,4)																(2,3,4)
Larimer-Weld Regional Council of Governments	(1,2,4)	(1,2,4)	(1,2,4)	(1,2,4)														
Lewis and Clark County Conservation District										5	5	5						
Sixth District Council of Local Governments											7							
Five County Association of Governments				2*														
Mountainland Association of Governments	(2,4,6)*			(2,4,6)*														
Southeastern Association of Governments					4				4				4				4	
Weber River Water Quality Planning Council					7,1		1,7										1	1,7,1
Teton County-Section 208 Planning Agency										7			7					
Tahoe Regional Planning Agency												(1,2)						
Ada/Canyon Waste Treatment Management Committee							2											
Panhandle Planning and Development Council									4,4					2		2		4
Southeast Idaho Council of Governments				2											2			
Columbia Regional Association of Governments				(1,2)					(1,2)									
Lane Council of Governments		4*		4*				1	1									
Mid Willamette Valley Council of Governments				2	2				2									
Municipality of Metropolitan Seattle							1					1					1	
Regional Planning Council of Clark County										5								
Snohomish County Metropolitan Municipal Corporation										5								

KEY

Implementing Agencies

1. County agency
2. City agency
3. Regional planning agency
4. Sanitary district or Sewer authority
5. Soil Conservation Districts
6. State agency
7. Federal agency

() indicates multiple implementing agencies

* Cost savings

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Accomplishment: The water quality management program helped the Augusta Sanitary District to correct a sewer interceptor problem stemming from an ineffective pretreatment system and to improve its regulatory program based on a sewer use ordinance. ---------- 1

Accomplishment: Water quality analysis and population projections performed by the water quality management agency convinced Readfield of the need for a regulatory program, which the town implemented as a zoning ordinance. --------- 3

Southern Kennebec Valley Regional Planning Commission (Augusta, Maine)
Greater Portland Council of Governments (Portland, Maine)

Performance Indicator: Five water quality management agencies in Maine, spearheaded by Southern Kennebec Valley Regional Planning Commission and Greater Portland Council of Governments, worked with the Maine Department of Environmental Protection to develop a method for funding small community wastewater treatment facilities. ---------- 4

Greater Portland Council of Governments (Portland, Maine)

Accomplishment: The Maine legislature passed two bills, proposed by the Greater Portland water quality management program, that regulate on-lot disposal systems so as to improve water quality and lessen the economic burden of compliance on home owners. ---------- 6

MASSACHUSETTS

Berkshire County Regional Planning Commission (Pittsfield, Mass.)

Accomplishment: The water quality management agency prepared a revised zoning by-law, adopted by the city of Stockbridge, which incorporates specific measures for groundwater protection. ---------- 9

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Accomplishment: The Berkshire County Regional Planning Commission, through the 208 program, has significantly speeded regionalization of wastewater treatment facilities. ---------- 8

Montachusett Regional Planning Commission (Fitchburg, Mass.)

Performance Indicator: Water quality management planning efforts aided in identification and adoption of a new sanitary landfill site. ---------- 12

Northern Middlesex Area Commission (Lowell, Mass.)

Performance Indicator: A seriously polluted lake, receiving significant contamination from poorly maintained septic tanks, has been reclaimed with money from the section 314 "Clean Lakes" program as a top priority in the water quality management program. ---------- 13

Old Colony Planning Council (Brockton, Mass.)

Performance Indicator: The water quality management agency assisted in reclamation of a major recreational pond rendered unusable by contributions from urban runoff. ---------- 14

Southeastern Regional Planning and Economic Development District (Marion, Mass.)

Performance Indicator: The water quality management agency established credibility with the industrial community through coordination of an effort among three competing silver plating firms to do a feasibility study on joint pretreatment and through assistance in obtaining funding. ---------- 14

REGION II

NEW JERSEY

Middlesex County Planning Board (New Brunswick, New Jersey)

Performance Indicator: The Policy Advisory Committee of the Middlesex County water quality management program was instrumental in closing a landfill causing surface and groundwater pollution in the town of Edison. ---------- 17

NEW YORK

Nassau-Suffolk Regional Planning Board (Hauppauge, New York)

Accomplishment: Citizen involvement in the water quality management process led the 208 agency to incorporate in its program a study of health effects of wastewater treatment alternatives, which would affect the quality and supply of the Long Island aquifer. ---------- 19

REGION III

DELAWARE

New Castle County Areawide Waste Treatment Management Planning Agency (Wilmington, Delaware)

Accomplishment: The New Castle County 208 program helped to achieve a $2 million cost savings in the County's Capital Improvements Budget through revision of sewer extension plans. -- 21

Performance Indicator: The New Castle County water quality management staff assisted in preparation of sewer use ordinances which were adopted by New Castle County and the city of Newark, Delaware to provide consistent sewer use requirements for the Wilmington regional wastewater treatment system. -- 21

REGION IV

ALABAMA

South Alabama Regional Planning Commission (Mobile, Alabama)

Accomplishment: Water quality management monitoring, analysis, and institutional recommendations led to state adoption of anti-degradation policies and local establishment of an industrial waste management authority to protect water quality in the Theodore Ship Channel and Mobile Bay. ---------- 24

FLORIDA

Central Florida Regional Planning Council (Bartow, Florida)

Accomplishment: The Central Florida Regional Planning Council negotiated the expansion of an existing secondary treatment plant as an alternative to construction of a new package plant, thus preventing potential water quality degradation in a local lake. --- 27

Performance Indicator: The water quality management staff and the Polk County office of the Department of Health and Rehabilitative Services (HRS) have developed a cleanup program which will give eligible juvenile first offenders a break, and help improve lakeshore areas at the same time. --------- 28

Performance Indicator: The water quality management agency, working with two state agencies, succeeded in obtaining agreement to modify engineering plans for a road which would have discharged large quantities of stormwater into five lakes. -- 29

Performance Indicator: The water quality management agency has set up a "Waterline" for citizens to call in local water quality problems. ---------- 30

Tallahassee-Leon County Planning Department (Tallahassee, Florida)

Accomplishment: The Tallahassee-Leon County Planning Department through its 208 program, developed a drawdown project to improve water quality on a lake undergoing advanced eutrophication. With the support of almost all residents of the lakeside area, the Leon County Commission approved the project which is now underway. ---------- 31

Performance Indicator: The water quality management agency is developing a comprehensive program to control urban runoff which is the major source of nutrients causing eutrophication of Lake Munson and is seeking implementation through adoption of a stormwater ordinance. ---------- 32

TENNESSEE

Chattanooga Area Regional Council of Governments (Chattanooga, Tenn.)

Performance Indicator: The water quality management agency assigned a staff person to work with the planning commissions for the city of Chattanooga and Hamilton County to develop an erosion control ordinance which is informally applied by the planning commissions through their review authority. ---------- 35

Knoxville-Knox County Metro Planning Commission (Knoxville, Tenn.)

Accomplishment: The water quality management agency reassessed plans for upgrading treatment facilities and effected cost savings by determining that tertiary treatment would produce neligible improvement in water quality, due to nonpoint source contributions and low dissolved oxygen problems caused by upstream dams. ---------- 35

First Tennessee-Virginia Development District (Johnson City, Tenn.)

Accomplishment: Through water quality management assistance and coordination, a regional treatment facility will be constructed resulting in considerable cost savings. The water quality management agency is assisting two cities and a county to create a regional management authority for the facility. ---------- 36

Performance Indicator: A stream assimilation study carried out by the water quality management agency will lead to a stream reclassification, allowing for less stringent treatment requirements while protecting high quality waters. ------------ 38

Performance Indicator: The Industrial Subcommittee of the 208 agency's Technical Advisory Committee, through investigation of industrial and municipal treatment compatibility, found that an industry could tie into a municipal system and realize cost savings for both the industry and municipality. ------------ 38

REGION V

WISCONSIN

Dane County Regional Planning Commission (Madison, Wisconsin)

Accomplishment: The Dane County, Wisconsin Water Quality Management agency, working with the Soil and Water Conservation District, generated the implementation of improved agricultural nonpoint source control measures. ------------ 40

Southeastern Wisconsin Regional Planning Commission (Waukesha-Milwaukee, Wisconsin)

Accomplishment: The Southeastern Wisconsin Regional Planning Commission provided assistance in developing a regional wastewater treatment facility for two towns. ------------ 42

Wisconsin Department of Natural Resources (Madison, Wisconsin)

Performance Indicator: The Wisconsin Department of Natural Resources Board adopted, as part of its Administrative Code, a sewer extension policy which was developed through the 208 program. ------------ 44

Performance Indicator: The Wisconsin Department of Natural Resources Board approved a comprehensive septic system management program, developed through the 208 program, and implementation is being sought through one of two alternatives. ------------ 45

REGION VI

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Association of Central Oklahoma Governments (Oklahoma City, Okla.)

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Performance Indicator: The water quality management agency set up a 208 "Hotline" for citizens to call in their water related problems. -- 47

TEXAS

North Central Texas Council of Governments (Arlington, Texas)

Accomplishment: The water quality management program for the Dallas-Fort Worth area is implementing a regional wastewater treatment management system and is also investigating its implications for nonpoint source control and regional planning and development. ---------------------------- 48

REGION VIII

COLORADO

Larimer-Weld Regional Council of Governments (Loveland, Colorado)

Performance Indicator: The Larimer-Weld Regional Council of Governments developed a "Utility Management Handbook", which enables small communities to evaluate the financial feasibility of proposed wastewater treatment alternatives. -------- 51

MONTANA

Lewis and Clark County Conservation District (Helena, Montana)

Accomplishment: Approval of a sediment control ordinance by local referendum, as a result of technical assistance and public participation provided under a water quality management program demonstration project. ------------------------ 53

SOUTH DAKOTA

Sixth District Council of Local Governments (Rapid City, S.D.)

Accomplishment: The U.S. Forest Service in the Black Hills National Forest, in cooperation with the local water quality management agency, has expanded its best management practices to incorporate water quality considerations. ------------ 56

UTAH

Five County Association of Governments (St. George, Utah)

Performance Indicator: Based on water quality analysis by the Five County Association of Governments, Hurricane City halted the drilling of a $240,000 well, which would have yielded contaminated water. -------------------------------- 58

Mountainland Association of Governments (Provo, Utah)

Accomplishment: Water quality analysis and facility planning by the Mountainland Association of Governments resulted in a $5 million cost savings for three regional wastewater treatment facilities. -------------------------------- 59

Southeastern Association of Governments (Helper, Utah)

Accomplishment: The Southeastern Association of Governments analyzed primary and secondary water quality impacts of energy development in Emery County, Utah and proposed technical and financial management measures that were implemented by industries and local governments. ------------ 61

Weber River Water Quality Planning Council (Weber River, Utah)

Accomplishment: Implementation of a water quality management stormwater regulatory program to control runoff in Davis County, Utah as a result of technical and institutional assistance. -- 64

Accomplishment: Implementation of pretreatment and stormwater regulatory programs on Hill Air Force Base, as a result of water quality management agency technical assistance and political involvement. Pretreatment facilities alone will cost $6 million. -------------------------- 66

Performance Indicator: Enforcement of hazardous materials standards on an industrial park, as a result of water quality management technical assistance. ------------------------ 68

WYOMING

Teton County-Section 208 Planning Agency (Jackson, Wyoming)

Accomplishment: The U.S. Forest Service in the Bridger-Teton National Forest has expanded its nonpoint source control program to incorporate water quality considerations, as a result of 208 funded water quality analysis. ---------------- 69

REGION IX

CALIFORNIA-NEVADA

Tahoe Regional Planning Agency (South Lake Tahoe, California)

Performance Indicator: Two counties are applying a "Handbook of Best Management Practices" which is part of the Lake Tahoe water quality management plan. ---------- 72

NEVADA

State Department of Human Resources (Carson City, Nevada)

Performance Indicator: Development, through a 208 demonstration project, of an institutional, regulatory, and technical program to control erosion and runoff caused by land-disturbing activities in Nevada. ---------- 74

REGION X

IDAHO

Ada/Canyon Waste Treatment Management Committee (Boise, Idaho)

Performance Indicator: Two local agencies are applying recommendations for stormwater control from a handbook prepared by the water quality management agency: "20 Ways to Manage Urban Stormwater". ---------- 75

Panhandle Planning and Development Council (Coeur d'Alene, Idaho)

Accomplishment: Technical and financial assistance provided by the water quality management program and increased public involvement accelerated the implementation of a vessel discharge ban on Lakes Pend Oreille and Coeur d'Alene. ---------- 75

Performance Indicator: An intensive public involvement program led to formation of a lakes management association to support restoration and protection of a ten-lake complex. ------ 76

Performance Indicator: On the basis of water quality management studies, the local Health District has adopted land use controls to mitigate and prevent further contamination of a major interstate aquifer. ---------- 78

Southeast Idaho Council of Governments (Pocatello, Idaho)

Performance Indicator: The water quality management agency assisted in developing a land application system for industrial and municipal wastewater effluent, which, when implemented, will allow for reuse of valuable water and nutrient resources. ---------- 79

OREGON

Columbia Regional Association of Governments (Portland, Oregon)

Performance Indicator: The water quality management agency has prepared, and the State has adopted, a land use framework which defines areas in which new treatment facilities will be allowed. -- 81

Lane Council of Governments (Eugene, Oregon)

Accomplishment: The water quality management agency achieved the development of cost-effective, regional wastewater treatment facility and the formation of a sewerage management agency for Lane County, Springfield, and Eugene, Oregon. -- 82

Performance Indicator: Problem identification by the 208 program led to a moratorium on septic tank installation and adoption of an operations and maintenance ordinance for existing on-site systems. ---------------------------------- 84

Mid Willamette Valley Council of Governments (Salem, Oregon)

Accomplishment: Salem, Oregon, with assistance from the water quality management agency, adopted an Industrial Waste Ordinance which regulates industrial wastes in the sewage treatment system and discharges into storm sewers. -------- 85

Performance Indicator: In order to standardize a regional base for facilities planning, the Mid Willamette Valley Council of Governments developed service boundaries and assisted in developing regional projections for the 33 cities in the area. -- 86

WASHINGTON

Municipality of Metropolitan Seattle (Seattle, Washington)

Performance Indicator: King County and the city of Bothell have begun implementation of a drainage management plan for the Juanita Creek basin. ------------------------------------- 88

Regional Planning Council of Clark County (Vancouver, Wash.)

Performance Indicator: Identification through the 208 program of major sources of water pollution in numerous Clark County streams has led to voluntary institution of BMPs. -- 90

Snohomish County Metropolitan Municipal Corporation (Everett, Wash.)

Performance Indicator: 208 staff, working with the Soil

Conservation Service and Agricultural Experiment Station technical advisors, proposed and secured acceptance of a set of best management practices to correct serious nonpoint source problems from beef and dairy cattle operations. -- 91

REGION I

MAINE

Southern Kennebec Valley Regional Planning Commission (Augusta, Maine)

Accomplishment: The water quality management program helped the Augusta Sanitary District to correct a sewer interceptor problem stemming from an ineffective pretreatment system and to improve its regulatory program based on a sewer use ordinance.

Background

The Augusta Sanitary District was established in 1971 to furnish sewerage collection and wastewater treatment services to five communities. This regional system consists of a ten mile interceptor sewer and a primary treatment plant. The sewage effluent is discharged into the Kennebec River, which is used for drinking water supply and recreation by residents. The district is currently upgrading its facility to provide secondary treatment.

Since the trunk line was activated in early 1972, odor problems have plagued major portions. As part of its 208 program, the Southern Kennebec Valley Regional Planning Commission provided the district with financial and technical assistance to identify the cause of this odor and devise structural and regulatory solutions.

Problem Assessment

The problem identified was sulfuric acid corrosion of the sewer pipe from sulfate reducing and acid forming bacteria that emanated in the effluent from woolen mills' pretreatment lagoons. The mills' pretreatment system actually exacerbated this reaction, rather than preventing it. Lack of dissolved oxygen in the wastewater lagoons increased bacterial incubation during detention, and the aerators only acted as mixers. Sampling revealed a continual drop in D.O. as the wastewater flowed through the pretreatment facilities. It was this inadequate level of dissolved oxygen that allowed biochemical corrosion of the sewer pipe.

To assess the damage, investigation and testing of pipe sections were carried out. A field check revealed uneven damage.

While the trunk line would not require immediate partial replacement, safeguards would have to be installed to protect the system from a potential break.

Technical and Regulatory Solutions

To prevent further biochemical corrosion and minimize damage in the event of a pipe rupture, the study recommended structural modifications and improvements. The Augusta Sanitary District's sewer use ordinance was revised to include pretreatment requirements designed to meet existing textile standards. A 208 staff member of the Southern Kennebec Valley Regional Planning Commission (SKVRPC) was instrumental in redrafting the sewer use ordinance.

The revised sewer use ordinance strikes an effective balance between private and public responsibility. Standards are stringent. Private users may select the treatment operations that achieve these standards. Nonetheless, they are required to install pretreatment, monitoring, and other necessary equipment and maintain records on their sewerage-related activities. This information gathering is designed to facilitate public enforcement of the ordinance.

Significance

This accomplishment is significant in three respects. First, the public nuisance created by the odor was tracked down and eliminated. Odor, however, was only the most perceptible part of the problem. The biochemical reaction that produced the odor also corroded the sewer interceptor. Thus, damage from the corrosion was stopped, and measures to minimize potential adverse impacts were developed.

Second, a regulatory program, based on a strengthened sewer use ordinance, was swiftly implemented by the Augusta Sanitary District. The consultant's final report was delivered in August, 1976, and the new ordinance took effect on October 1, 1976.

Third, local cooperation among public and private parties ensured prompt implementation of the improved sewer use ordinance. The 208 agency, Augusta Sanitary District, communities served by the regional system, and industrial users worked together to correct the existing deficiencies in private and public programs.

Southern Kennebec Valley Regional Planning Commission (Augusta, Maine)

Accomplishment: Water quality analysis and population projections performed by the water quality management agency convinced Readfield of the need for a zoning ordinance, with provisions to control septic systems.

Problem Assessment

The town of Readfield, a small rural community near Augusta, Maine, previously had not considered land use controls essential. 208 water quality analysis and population projections identified eutrophication from phosphorous enrichment as a potential threat to Lake Maranacook, which borders Readfield. Although agriculture has been pinpointed as the major source of phosphorous, failing septic systems and stormwater runoff also generate this pollution. Without adequate regulation of septic systems and stormwater runoff, both existing and new development would threaten the basically high quality of the lake.

Regulatory Solution

The water quality management agency provided Readfield with technical assistance to prepare a zoning ordinance. The adopted zoning ordinance lessens the probability of contamination from septic tanks by establishing minimum lot sizes that relate to soil suitability and by referencing the State plumbing code, which imposes strict requirements on new development.

Local resistance to land use controls had been so strong that no previous attempt to enact a zoning ordinance had been made. The 208 agency helped to overcome this negative attitude, with the result that the town planning board enacted the zoning ordinance the first time it was considered.

Significance

The significance of this accomplishment is twofold. First, the 208 program produced water quality and demographic information that educated the community about local nonpoint sources of pollution. Second, it furnished technical expertise that enabled Readfield to draw up and adopt a zoning ordinance that incorporates water quality considerations.

Southern Kennebec Valley Regional Planning Commission (Augusta, Maine)
Greater Portland Council of Governments (Portland, Maine)

Peformance Indicator: Five water quality management agencies in Maine, spearheaded by Southern Kennebec Valley Regional Planning Commission and Greater Portland Council of Governments, worked with the Maine Department of Environmental Protection to develop a method for funding small community wastewater treatment facilities.

Background

Failing septic systems are a significant problem in small communities in Maine. Such communities may be included on the State's construction grants priority list, but they are so far down the list that funding would be at least several years away. Failing septic systems degrade water quality and are illegal. Therefore, solutions are needed now.

The Southern Kennebec Valley Regional Planning Commission investigated wastewater disposal problems in non-sewered areas. The preferred solution for failing septic systems is to solve the problem on-site, if possible. This is more cost-effective and environmentally acceptable than extending sewer lines which encourage new growth. If this solution is not possible, the next alternative is to use a cluster approach - choosing the closest suitable site for subsurface disposal to serve a number of homes.

Funding Program

The areawide planning agencies worked with the Maine Department of Environmental Protection (DEP) to develop a method for financing cluster systems.

They developed a small-scale construction grants priority list which would be concurrent with the regular priority list. Eligibility requirements for this list are that the total cost for the project is $200,000 or less and that the facility handles 15,000 gallons per day (serving approximately 50 homes) or less. The criteria for setting priorities on this small-scale are the same as those for the existing State priority list. The main purpose of this funding method is to provide funds for cluster septic systems, but it can also be used to fund package wastewater treatment plants.

This funding would be available to correct problems for any small group of homes. The management agency applying for funding must be a legal entity, such as a town, sanitary district or lakeshore association. To avoid a proliferation of management agencies, one management agency can be designated to cover several towns or even sections of a town with distinct problems.

EPA Region I has agreed with the proposal for two construction priority lists. The Maine DEP staff has agreed to support the plan and proposes to begin implementing it in FY '79. From one to five percent of State funds will be set aside for this second list. Since these small projects can complete one step and be ready to go on to the next in a short time, towns may be on the small-scale list for Step 1, 2 and 3 grants all in the same year.

Setting up the small-scale construction grants list in Maine to be concurrent with the regular priority list is an administrative change which requires no revision of regulations.

Significance

For many areas of Maine with failing septic systems, construction of new subsurface disposal systems is environmentally and financially more sound than construction of treatment facilities. This funding scheme worked out in cooperation between the water quality management agencies in the State and the Department of Environmental Protection will provide the financial capability for small groups of homeowners to correct serious septic system problems much sooner. The result will be protection of health and water quality, and for the homeowners, relief from the onus of legal violations.

Greater Portland Council of Governments (Portland, Maine)

Accomplishment: The Maine legislature passed two bills, proposed by the Greater Portland water quality management program, that regulate on-lot disposal systems so as to improve water quality and lessen the economic burden of compliance on home owners.

Septic System Management Problems

Many Maine residents use on-lot disposal systems, partly due to low population densities in the State. At the outset of Greater Portland Council of Governments' 208 program, its Citizen Advisory Committee (CAC) identified two specific problems relating to on-lot disposal: 1) potential septic system failures resulting from conversion of seasonal homes to year-round use; and 2) harsh financial penalties for violations involving malfunctioning systems.

Since about half the State's population relies on on-lot disposal systems, the Citizen Advisory Committee members recognized that these were statewide problems. Additionally, they realized that correction of the on-lot disposal problems would require State enabling legislation to improve existing regulatory programs.

Conversion of Homes from Seasonal to Year-Round Use

Maine's plumbing code, which was adopted in the early 1970's, applies to subsurface disposal systems. However, existing homes were exempted from this new law, and therefore on-lot systems in place when the code took effect remained unregulated.

On-lot disposal systems for seasonal dwellings in Maine are often small and homemade. They are adequate to handle small amounts of wastes for several months, but inadequate for year-round use. There are two potential consequences of septic system failures: 1) surface and groundwater quality degradation from septic tank leachate, and 2) costly and growth-inducing extensions of public sewer lines and expansion or construction of sewage treatment facilities.

Enforcement Provisions for Malfunctioning Septic Systems

Maine State law classifies malfunctioning septic systems as nuisances that, once identified, must be eliminated. A municipal officer may order home owners to correct the defective on-lot systems, and take them to court if they do not comply. Alternatively, the municipality can correct the problems and recover the costs from home owners through a court procedure. These costs must be repaid to the municipality within one year. Either type of enforcement is an adversary proceeding, which most municipalities are reluctant to undertake. Consequently, the law that covered malfunctioning septic systems had not been systematically enforced.

New Enabling Legislation

The bill covering seasonal home conversion was introduced by a State Legislator who is also a member of the Greater Portland WQM program's CAC. The bill's course through the legislature was stormy. The WQM staff lobbied for its passage and staff from several State agencies helped to draft compromise legislation. The original bill would have required that every seasonal home being converted to year-round use within a 250 foot shoreland area have a septic system in compliance with the State Plumbing Code. (While this bill was being introduced in the legislature, another CAC member was instrumental in achieving adoption of a similar amendment to the Shoreland Zoning Ordinance in his hometown of Harrison.)

The bill which was finally enacted by the state legislature requires a permit from the local plumbing inspector for conversion to year-round use (more than six months) of a seasonal home within a 250 foot shoreland area. A home owner must meet one of the following conditions to receive a permit: the dwelling's sewage disposal system must meet the standards of the Maine State Plumbing Code; a site evaluation must be performed to demonstrate that site conditions, including lot size and soil type, will permit installation of a sewage disposal system conforming to the plumbing code if the existing system should fail; or the sewage disposal system is connected to an approved sanitary sewer system.

The other bill prepared by the water quality management agency and adopted by the legislature amends the method for collecting municipal costs incurred in abating malfunctioning on-lot disposal systems. This bill gives municipalities the option of adopting a local ordinance which would allow them to establish a ten year pay-back period to recover from home owners the costs of correcting a malfunctioning septic system. A draft ordinance has been prepared to assist municipalities in implementing this law.

Implementation

Each town in Maine has a local plumbing inspector who is authorized to carry out the provisions in these two acts. Towns have the authority to set fees for plumbing inspection and can finance inspections of conversions by establishing a specific fee.

Significance

The Citizens.Advisory Committee and the staff of the Greater Portland water quality management program developed environmentally sound and economically feasible solutions to problems involving on-lot disposal systems. The two State laws offer more effective means to handle existing and potential problems. The potential for contamination of surface and ground waters, greatly increased sewage treatment costs, and unwanted population growth is limited by the new requirements for conversion of seasonal homes. Also, existing on-lot dystem failures are more likely to be corrected now that municipalities and local plumbing inspectors can recover costs without imposing a harsh financial burden on individual home owners.

The Citizens Advisory Committee played a major role in achieving implementation of these two programs for managing on-lot disposal systems. The Committee identified these problems at the outset of the program, worked closely with the staff in developing legislation to implement specific septic system management practices, and achieved implementation of more stringent regulation of seasonal home conversions in one town within the planning area. The CAC and WQM staff obtained input and assistance from State agencies in amending the legislation and effectively guided these bills through the legislature. While the bill enacted to regulate conversion of seasonal dwellings is less stringent than the original CAC recommendations, it still provides for protection of water quality and reduces statewide costs for implementation by not requiring improvements if an existing septic system is shown to be adequate.

Berkshire County Regional Planning Commission (Pittsfield, Mass.)

Accomplishment: The water quality management agency prepared a revised zoning by-law, adopted by the city of Stockbridge, which protects groundwater.

Data Collection

The Berkshire County Regional Planning Commission (BCRPC) identified the most significant aquifers to provide current and potential municipal water supplies through the year 2000. Primary recharge areas were mapped, and existing and potential threats to groundwater quality were evaluated. BCRPC developed land use guidelines for protection of major aquifer recharge areas. To implement the plan recommendations, BCRPC developed a draft zoning by-law for groundwater protection.

Development of Regulatory Program

In 1975, Massachusetts passed a law that requires all towns in the state to do a comprehensive revision of their zoning laws. The Stockbridge Planning Board requested that BCRPC revise the existing zoning ordinance. The water quality management staff prepared a zoning ordinance that incorporates the groundwater protection guidelines from the water quality management plan. The Planning Board approved the revisions in January, 1977, and the voters of Stockbridge endorsed the revisions in March. In addition to traditional zoning districts, the ordinance defines Conservancy Districts which include floodplain districts, wetland areas and groundwater recharge areas.

The conservancy districts are overlay districts, superimposed on existing zoning districts. If there is a discrepancy between the uses allowed in any area under its zoning classification and its conservancy district classification, the more restrictive use takes precedence. Through their review authority the Planning Board is the management agency.

In addition to the regulations and restrictions for all three conservancy districts which are in the zoning ordinance, the ordinance makes proposed uses for groundwater recharge areas subject to the land use guidelines recommended in the Upper Housatonic 208 Water Quality Management Plan (prepared by BCRPC), which are cited by reference in the ordinance. The goal of the land use guidelines is to meet standards of 10 mg/l nitrogen and 20 mg/l sodium in groundwaters. These guidelines combine regulation of development densities with structural controls.

Significance

BCRPC achieved a significant step in implementation of plan recommendations by developing a program "package" for action by the Planning Board and the citizens of Stockbridge. Revision of the zoning by-law offered an ideal opportunity for the Berkshire County 208 staff to incorporate provisions for groundwater protection into a comprehensive zoning program. In addition, through assistance to Stockbridge, BCRPC is building credibility as an agency able to help solve local problems and incorporate water quality concerns with other local concerns.

Berkshire County Regional Planning Commission (Pittsfield, Mass.)

Accomplishment: The Berkshire County Regional Planning Commission, through the 208 program, has significantly speeded regionalization of wastewater treatment facilities.

Background

In 1969, BCRPC prepared a wastewater management plan which recommended regionalization of the sewage treatment plant in Pittsfield to handle sewage flows from Hinsdale and Lenox.

Lenox

The original plan recommended that Lenox abandon new primary treatment plant in the north of town and turn it into a pumping station. Action on these recommendations was proceeding slowly due to local reluctance to abandon the plant and to technical difficulties.

Solution

BCRPC started its planning program in July, 1975 and, by September, presented Lenox with a revised facility plan. Population and land use projections were revised and sewer service areas and interceptor designs were modified. The Pittsfield sewage treatment plant has adequate capacity to handle wastes from Lenox so the redefinition of service areas routed more sewage to Pittsfield from areas which had initially been designated for hookup to a Lenox Center treatment plant. The town approved modification of the regional sewage treatment plan for Lenox, and the project will be on-line by June, 1978.

Significance

Without the reassessment of the regional wastewater management plan, action to hook up North Lenox to the Pittsfield plant would have taken several years longer. In addition, redefining the service areas has led to a decrease in the proposed load for the Lenox Center plant. This will extend the useful life of the plant. Another result will be improved water quality in the Housatonic River since sewage flows from North Lenox will receive secondary treatment at the Pittsfield plant rather than primary treatment at the North Lenox plant.

Hinsdale

BCRPC had recommended sewering the North Lakeshore areas of Hinsdale as well as the town itself. The reasons for recommending sewering around the lake were health problems due to septic system failures and eutrophication. BCRPC was able to show that a regional system would be more cost effective and have greater reliability than an in-town treatment plant. A regional system would result in a projected capital cost savings of approximately 25 percent and operating cost savings of approximately 50 percent. The town accepted BCRPC recommendations and negotiations were completed with Pittsfield and another town to allow Hinsdale into the system. In 1971, disagreement developed with the state regarding design of a trunk line for future extension to lakeshore areas. The project reached a standstill.

Solution

Under the 208 program, sewering of the lakeshore was reevaluated. More data collection and analyses were done to estimate the effects of sewering on lake eutrophication, to identify public health problems due to septic system failures, and to reassess alternative solutions.

Results of the lake eutrophication study were mixed. They showed that sewering alone would have very limited benefits in controlling eutrophication, since other significant sources of phosphorous were identified. Also, the extension of sewer lines might lead to environmental degradation due to new development. Sewering the lakeshore was still chosen as the best alternative for health reasons, and the town reaffirmed the decision in September, 1976. Meetings with town officials were held by BCRPC throughout the reevaluation to keep them informed of the progress of the study. Extension of the regional system to Hinsdale is now under way.

Significance

The water quality management program was the vehicle for BCRPC to provide a concentrated effort to resolve the issues concerning sewering lakeshore areas of Hinsdale. Water quality management studies provided more detailed data to verify and give greater legitimacy to the recommendation. Also, as a result of the findings of the eutrophication study, town officials have become concerned with taking preventive action against further eutrophication and with lowering nutrient levels from other sources. Since existing zoning regulations for Hinsdale may contribute to development pressures on the lake, town officials are working with BCRPC staff to revise zoning and subdivision regulations. They are also looking into lake management techniques, including erosion controls and farming best management practices to supplement limited benefits of sewering.

Montachusett Regional Planning Commission (Fitchburg, Mass.)

Performance Indicator: Water quality management planning efforts aided in identification and adoption of a new sanitary landfill site.

Background

The Squannacook River is one of the prime trout streams in the state. Leachate and runoff from the nearby Townsend dump are threatening the quality of the stream. Pursuant to Massachusetts statute, the State Department of Environmental Quality Engineering (DEQE) ordered the closure of the dump to eliminate further loadings to the stream.

Technical

The Montachusett water quality management agency assisted in the formation of a sanitary landfill comittee and directly provided engineering and planning expertise to the town in seeking a suitable site for a sanitary landfill. WQM planners evaluated a number of proposed locations for the new disposal facility and identified the most suitable location. Montachusetts Regional Planning Commission also provided population forecasts and municipal and industrial waste predictions to accurately determine landfill capacity.

Political Solution and Funding

In September, 1976, Townsend received temporary approval for the new site from the DEQE, and in February, 1977, the Townsend Board of Health designated this area as the proposed landfill site. Subject to appropriation of funds by the town for purchase and to the development of a state-approved engineering plan, the new landfill should be in operation within a year.

Significance

Relocation of the landfill will improve and protect the water quality of the Squannacook River, correct a long-standing shoreline blight and help restore and maintain the stream's recreational uses.

The water quality management agency helped identify and involve key political actors and technical experts to solve the problem.

The success of this experience is expected to benefit neighboring towns with similar problems. The town of Lunenburg has also been ordered to close its dump to prevent drainage into Hickory Hills Lake. Montachusett Regional Planning Commission has already supplied waste generation forecasts to the town's sanitary landfill committee and sponsored meetings with the town's selectmen and engineering consultant.

Northern Middlesex Area Commission (Lowell, Mass.)

Performance Indicator: A seriously polluted lake, receiving significant contamination from poorly maintained septic tanks, will be reclaimed with money from the section 314 "Clean Lakes" program as a top priority in the water quality management program.

Background

Nutting Lake, in the northern Middlesex region of Massachusetts, has been growing increasingly productive over the past decade. As the lake is an important recreational and aesthetic resource its reclamation was deemed urgent.

Technical

Engineering studies were conducted to determine sources and the extent of contamination. Septic tanks serving lakeside homes were found to be responsible for significant nutrient contributions.

Management Program and Funding for Reclamation

A septic tank inspection program requiring yearly inspection for compliance with the state sanitary code was adopted by the town of Billerica. The Health Agent for the town Board of Health carries out the inspection. The town has received a Clean Lakes grant under section 314(b) of P.L. 92-500, and a physical reclamation program will get under way in the spring.

Significance

Funding from two distinct sections of P.L. 92-500 has enabled identification and regulatory control of serious nonpoint sources from leaching septic tanks and active restoration of the polluted water body.

Old Colony Planning Council (Brockton, Mass.)

Performance Indicator: The water quality management agency developed a program to reclaim a major recreational pond rendered unusable by contributions from urban runoff.

Background

Ellis Brett Pond, in D.W. Field's Park in Brockton, Massachusetts, is the only major natural swimming and fishing facility in this city of 100,000 people.

Urban runoff has flowed to the pond in increasing amounts in recent years due to progressive development of major shopping centers and multi-family dwellings. Local concern about declining water quality in the pond precipitated interest from both the 208 agency representing that area and the Massachusetts Department of Environmental Quality Engineering (DEQE). A multi-agency effort involving three tiers of government evolved (city, state and federal), which will result in a comprehensive lake reclamation program.

Funding

The City is scheduled to receive a Clean Lakes grant under section 314(b) of P.L. 92-500 contingent on City and State commitment of matching funds. The water quality management agency has designated a stormwater management system which will be implemented with the 314(b) funds.

Southeastern Regional Planning and Economic Development District (Marion, Mass.)

Performance Indicator: The water quality management agency established credibility with the industrial community through coordination of an effort among three competing silver plating firms to do a feasibility study on joint pretreatment and through assistance in obtaining funding.

Background

Metal plating is a major industrial activity in southeastern Massachusetts and wastes from plating processes have long comprised serious pollution loadings to streams in that area. Faced with the prospect of installing expensive pretreatment equipment to meet NPDES requirements, three silver plating firms are participants in a study to determine the feasibility of recovering silver from their wastes and jointly using one pretreatment facility. Two more similar firms are keeping tabs on the economic feasibility of the project but are not yet committed.

Logistics

Because of the competitive sensitivity of the firms, an approach was coordinated through the local Chamber of Commerce by the water quality management agency. It was proposed that recovery of the process materials may be profitable and that economic gains could result from joint waste pretreatment. The alternative requirements for each firm under NPDES permits may cost hundreds of thousands of dollars more than the joint project. EPA Research and Development is funding the project and the study is now underway.

Significance

The water quality management agency was able to initiate a cooperative effort with three private companies to develop a proposal for a joint pretreatment study involving all three companies. It is important that the agency was able to secure agreement for a joint effort in a highly competitive industry. The agency has established credibility for the water quality management program in the industrial community by its efforts to find water quality solutions that will also be cost effective for industry.

REGION II

NEW JERSEY

Middlesex County Planning Board (New Brunswick, New Jersey)

Performance Indicator: The Policy Advisory Committee of the Middlesex County water quality management program was instrumental in closing a landfill causing surface and ground water pollution in the town of Edison.

Background

The Kinbuc landfill in Edison is located on a floodplain and over a major aquifer. The landfill accepted chemical and toxic wastes as well as solid waste. Separate studies conducted for the 208 program and EPA confirmed that the landfill is polluting the Raritan River and the aquifer which is the second largest drinking water source in the county. The EPA study recommended closing the landfill.

Policy Advisory Committee Recommended Actions

On the basis of these findings, the 208 Policy Advisory Committee wrote a letter to the New Jersey Department of Environmental Protection (DEP) strongly urging the DEP to close the landfill. The Policy Advisory Committee's involvement was influential in the initial decision by the DEP to order closure of the landfill especially because of its membership. The Committee has 50 elected members representing 35 municipalities and includes five mayors and five elected city council members as well as industry representatives and private citizens. The Chairman is an appointed official from a township in the county.

The Policy Advisory Committee recommended legislation, which is now before the state legislature, for monitoring and surveillance of landfills. In addition, the state attorney general agreed to represent the Advisory Committee in hearings on revisions to the State Solid Waste Act.

Significance

The Policy Advisory Committee helped to raise awareness of important water quality issues relating to landfill leachate and identified the water quality management program as an effective means for dealing with water quality problems of local concern.

Closure of this specific landfill does not solve all problems related to disposal of chemical and toxic substances; but through publicity on this landfill, the broader issue of developing and enforcing a comprehensive solid waste management program is receiving statewide attention. The Policy Advisory Committee has been active in seeking long term solutions through development of statewide legislation to regulate siting and operation of solid waste disposal facilities.

Nassau-Suffolk Regional Planning Board (Hauppauge, New York)

Accomplishment: Citizen involvement in the water quality management process led the 208 agency to incorporate in its program a study of health effects of wastewater treatment alternatives, which would affect the quality and supply of the Long Island aquifer.

Background

The Nassau-Suffolk 208 program confronts both water quality and water quantity problems in attempting to protect the Long Island aquifer, the sole drinking water source for the region. Water quality has deteriorated as a result of septic tank seepage, stormwater and agricultural runoff and infiltration, and landfill leachate. Water quantity has decreased due to increased reliance on the aquifer for residential and industrial uses and diminished discharge to the aquifer because of ocean disposal of wastewater and stormwater effluent.

Increased recharge is a major goal of the water quality management process, and the Citizen Advisory Committee (CAC) raised the issue of whether stream flow augmentation, stormwater and sewage disposal, control of leachate, and other technical alternatives that were under study could impact public health. CAC members were particularly concerned that viruses and other contaminants that were in water recycled to the aquifer might threaten its water supply function.

Citizen Advisory Committee Presentations on Potential Viral Contamination

To substantiate their concern over possible viral contamination of the Long Island aquifer, CAC members contacted the Health Departments of Nassau and Suffolk Counties, which were already aware of the potential problem. They also arranged for two specialists to give presentations on viral investigations before the 208 Policy Advisory Committee and EPA officials.

The evidence contained in these presentations convinced the 208 and EPA regional staffs to modify the water quality management work plan to include viral monitoring. $110,000 from the existing budget was allocated for this project, which is managed by the county health departments and conducted by Brookhaven National Laboratory. The findings of this study will be incorporated into the evaluation of technical alternatives in order to assess their public health implications.

Significance

This accomplishment is significant in two respects. First, the 208 program was expanded to measure the potential public health impacts of alternative water quality management solutions to the Long Island aquifer's quality and quantity problems. Both research and practical experience indicated that the aquifer's use as a drinking water supply could be threatened by the introduction of viruses and other contaminants. Without this study, the final plan recommendations might have been deficient or detrimental in the area of public health.

Second, this accomplishment demonstrates the contribution that citizens can and should make to the 208 program. Public awareness and apprehension generated the viral monitoring project and assessment of potential public health effects. Technically competent citizens must become involved in the water quality management program to ensure comprehensiveness. This example shows that citizen participation under 208 is an effective means of utilizing their knowledge.

REGION III

DELAWARE

New Castle County Areawide Waste Treatment Management Planning Agency (Wilmington, Delaware):

Accomplishment: The New Castle County 208 program helped to achieve a $2 million cost savings in the County's Capital Improvements Budget through revision of sewer extension plans.

The New Castle County 208 staff completed an evaluation of proposed sewer extension plans to provide service to homes with septic systems. The evaluation included a determination of on-lot disposal methodologies considering environmental restraints such as soil type, topography and hydrology.

The 208 staff developed a priority list for septic system needs which identified those areas most in need of sewering and those areas more suitable for continued operations of on-lot disposal systems. The County revised the Capital Improvement Plan to include only those areas in need of immediate sewering, resulting in a $2 million cost savings.

The 208 agency intends to prepare a new septic tank ordinance in its continuing planning program.

New Castle County Areawide Waste Treatment Management Planning Agency (Wilmington, Delaware):

Performance Indicator: The New Castle County water quality management staff assisted in preparation of sewer use ordinances which were adopted by New Castle County and the city of Newark, Delaware to provide consistent sewer use requirements for the Wilmington regional wastewater treatment system.

Background

In December, 1974, the city of Wilmington, Delaware enacted a sewer use ordinance which sets limitations for certain wastewater constituents, both for dischargers within the city limits and at city/county interface points. Substances and characteristics which are limited include arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, zinc, nickel, silver, cyanide, ammonia, nitrogen, phosphorus, iron, phenol, dissolved solids, temperature, pH, BOD, suspended solids, and color. This ordinance limits specific constituents discharged from the New Castle County system into the Wilmington system. Therefore, the County had to establish a more restrictive control program.

Regulatory Program

New Castle County asked the water quality management agency staff to provide assistance in revising the county sewer use ordinance. A coordinated effort by the 208 staff, personnel from the County Departments of Public Works and Law and industrial representatives from the 208 Citizens Advisory Committee produced a revised sewer use ordinance. This was enacted by the County Council in December, 1975.

The city of Newark, Delaware had to act to meet the more restrictive limits imposed by the new county ordinance. The 208 agency provided assistance to the Office of the City Manager to revise the existing sewer use ordinance. The revised ordinance adopted by the Newark City Council in June, 1976 is almost identical to that adopted by the county. Both ordinances limit the same substances and characteristics as the Wilmington sewer use ordinance. The underlying goal of the ordinances is to protect regional wastewater treatment facilities and facility operations.

The Newark ordinance includes a user charge system. Wilmington and New Castle County enacted separate user charge ordinances, and user charges are in effect in all three areas. The New Castle County and Newark ordinances include permitting provisions for all non-domestic users, but the permitting process is only initiated upon notification to the individual industry by the city or county. Wilmington does require industrial self monitoring -- a one-time requirement as part of an Industrial Waste Questionnaire for the user charge system.

At this time New Castle County has initiated permits for a few larger industries associated with past problems or suspected as potential producers of significant quantities of wastes which cannot be handled in the municipal system. Newark, due to staff deficiencies, has not initiated any permits.

The major constraint to enforcement of all three ordinances is that the constituent limitations were selected by an undefined method and need verification in the Wilmington sewerage system. Until discharge requirements appropriate to local conditions and treatment capabilities can be established, many provisions of the ordinances cannot be enforced. The ordinances contain the authority to conduct a comprehensive waste survey and the monitoring necessary for verification of the existing limits; but due to funding shortages, very little, if any, monitoring is now underway. As part of its continuing planning process, the New Castle 208 agency intends to develop alternatives to provide sufficient funding.

Significance

Obtaining enactment of consistent sewer use ordinances in these three jurisdictions is a major step in controlling industrial wastewater discharges. It required resolution of considerable political and legal problems. An important aspect of these ordinances is the broad range of substances and characteristics they regulate. Full enforcement of the ordinances cannot be effected until an adequate, reliable financial support program can be put in place to allow development of a data base sufficient to establish justifiable constituent limitations.

REGION IV

ALABAMA

South Alabama Regional Planning Commission (Mobile, Alabama)

Accomplishment: Water quality management monitoring, analysis, and institutional recommendations led to State adoption of anti-degradation policies and local establishment of an industrial waste management authority to protect water quality in the Theodore Ship Channel and Mobile Bay.

Background

Since the early 1970's, EPA Region IV had been concerned about point and nonpoint source pollution from construction and use of the Theodore Ship Channel in Mobile Harbor. In 1975, the U.S. Army Corps of Engineers proposed to extend the channel by building a barge canal that would be dead-end and therefore would lack the capacity to assimilate wastes. One of the major users of the barge canal will be the 4,000 acre Theodore Industrial Park, which was 20 percent completed as of mid-1977.

Given the planned barge canal extension, EPA Region IV declared, on the basis of available modeling data, the water quality classification for fish and wildlife in the canal could only be achieved by total containment of wastes or some other acceptable water quality management program. The South Alabama Regional Planning Commission, the 208 agency for Mobile, Alabama, assumed responsibility for developing a water quality management program for the Theodore Ship Channel area and obtained technical assistance from the local 201 agency, Alabama Water Improvement Commission, and the U.S. Army Corps of Engineers.

Technical Component

The Mobile area 201 agency studied the compatibility of industrial wastes being mixed with municipal wastes for treatment in a combined facility. The results indicated that industrial wastes were not compatible with the conventional municipal wastes and that a separate industrial waste treatment system was required.

The water quality management agency then conducted water quality monitoring in the Theodore Ship Channel to determine existing water quality and the nonpoint source contribution from the industrial park. With financial assistance from the Alabama Water Improvement Commission and technical assistance from the Corps of Engineers, the South Alabama Regional Planning Commission performed mathematical and physical modeling to evaluate future water quality and test alternative industrial discharge points in Mobile Bay. Simulation by the Corps of Engineers Waterways Experiment Station in Vicksburg, Mississippi, yielded the discharge point with the optimal combination of dilution and dispersion characteristics.

State Discharge Policies for Theodore Ship Channel

Based on the modeling effort and water quality management agency recommendations, the Water Improvement Commission adopted a set of policies aimed at maintaining and improving water quality in the Theodore Ship Channel. The policies, which support anti-degradation, address both point and nonpoint sources of pollution. They require the application of best management practices to control pollution from construction activities and industrial stormwater runoff and propose the establishment of an industrial waste treatment entity. EPA Region IV reinforced these actions by stating that future NPDES permits would have to be consistent with the 208 recommendations and State policies.

Establishment of the Waste Water Treatment - Discharge Management Authority

When the Theodore Industrial Park was established, no public agency assumed responsibility for managing the facility and, in particular, for providing wastewater treatment service. Since the water quality assessment revealed that industrial waste management was essential to protecting the Theodore Ship Channel, the Policy Committee of the 208 agency recommended that the Mobile Board of Water and Sewer Commissioners perform these functions for the Theodore area. This recommendation was adopted, and the Board accepted the responsibility as the Waste Water Treatment - Discharge Management Authority for that purpose.

To discharge its responsibilities, the Authority will construct a catch basin and 30 inch waste outfall line. One local industry located in the Theodore Industrial Park, DeGussa Alabama, Inc., is cooperating with the Authority on the design and financing of the outfall line, which incorporates the discharge point alternative derived from the 208 modeling.

This industry had intended to construct an 18 inch line and will apply the cost of that line to the 30 inch line, which the Authority will finance by a bond issue. Additional users of the pipeline outfall will pay a pro rata share of the construction cost.

Significance

This accomplishment is significant in three respects. First, the 208 program was instrumental in preserving the water quality in Mobile Bay and the Theodore Ship Channel and Barge Canal. Without the monitoring and modeling that the South Alabama Regional Planning Commission coordinated, two industries would probably have been issued permits based on insufficient information, thus jeopardizing water quality in the area. The anti-degradation policy adopted by the Alabama Water Improvement Commission and supported by EPA Region IV, and the establishment of the management authority sponsored by the 208 agency ensure that future waste management in the area will continue to protect water quality in Mobile Bay, as well as in the Theodore Ship Channel and Barge Canal extension.

Second, this process of formulating and implementing the solution to a water quality problem is an excellent example of interagency coordination. Less than 18 months elapsed between the time EPA Region IV requested additional monitoring in Mobile Bay and the Mobile Board of Water and Sewer Commissioners voted to form the management authority. The South Alabama Regional Planning Commission modified its 208 program to deal with this priority problem and successfully drew on the resources of key local, State, and Federal agencies to produce the technical, and institutional components essential to a long-range solution.

Finally, the construction of the outfall was expedited by the cooperation of DeGussa Alabama, Inc., one of the major industries in the Theodore Industrial Park. This firm's pledge to underwrite more than half the cost of the pipe reflects its commitment to protecting the local environment. Preserving the water quality of Mobile Bay and the Theodore Ship Channel and Barge Canal extension is a goal that the public and private sectors can jointly pursue, because they both stand to benefit from a successful outcome.

Central Florida Regional Planning Council (Bartow, Florida)

Accomplishment: The Central Florida Regional Planning Council negotiated the expansion of an existing secondary treatment plant as an alternative to construction of a new package plant, thus preventing potential water quality degradation in a local lake.

Political Solution

Through its A-95 review responsibilities, the water quality management agency received a proposal for construction of a new package treatment plant to serve a housing development under construction. The perk evaporating pond for the proposed plant would have been located very close to a lake and would have eventually infiltrated nutrients into the lake. It would also have been directly across the street from an existing secondary treatment plant run by Polk County.

The 208 agency negotiated with the county and the developer to expand the capacity of the existing plant to accommodate the new development. The developer and the county reached an agreement whereby the developer is paying for expansion of the existing plant and the county will serve the new development.

Significance

This agreement is important for two reasons. First, the water quality management agency helped achieve a technically more acceptable solution. An existing treatment plant's operations will be more efficient and more cost effective, and construction of a new package plant has been avoided. This solution will also save the developer land and money.

Secondly, and almost equally important, the water quality management program has proved its effectiveness in solving local solutions and raised its credibility (and the credibility of the regional planning council which is only three years old) with both the county and the developer. In fact, the developer became interested in the water quality management program and agreed to serve on the Technical Advisory Committee.

Central Florida Regional Planning Council (Bartow, Florida)

Performance Indicator: The water quality management staff and the Polk County office of the Department of Health and Rehabilitative Services (HRS) have developed a clean-up program which will give eligible juvenile first offenders a break, and help improve lakeshore areas at the same time.

How It Works

The program is designed to alleviate the caseload of juvenile probation officers by enrolling first offenders from the ages of 12-17 in a work rehabilitation program in lieu of sentencing and probation. At the same time, their work will result in cleaner lakeshore and recreation areas.

The Polk County program was begun in Lakeland, where each juvenile in the work-rehab program spends 8-16 hours in various environmental clean-up jobs. The juveniles are assigned environmental clean-up tasks in the Lakeland area, such as the collection and proper disposal of litter and trash surrounding several city lakes and recreation areas.

Program Success

So far the program has been very successful. Reactions from both the teenagers involved and their parents are good. The program is being expanded from city to county-wide and the State Attorney's office has commented on its success. People have also commented on a noticeable improvement in the lakeshore environment.

Significance

Among those in direct contact with this clean-up program, the water quality management agency has created good will and been identified with a broader range of community concerns. For the general public, this program has resulted in a noticeable improvement in environmental quality.

Central Florida Regional Planning Council (Bartow, Florida)

Performance Indicator: The water quality management agency, working with two state agencies, succeeded in obtaining agreement to modify engineering plans for a road which would have discharged large quantities of stormwater into five lakes.

Background

One of the priority problems in this area is eutrophication of lakes, and a major effort is being directed to develop strategies to prevent stormwater runoff from further deteriorating surface waters. In early 1977, the 208 staff became aware of a road project being designed by the Florida Department of Transportation. Following the original design, the road would discharge large quantities of stormwater into five lakes.

Coordination

The Florida Department of Environmental Regulation had not been involved in the project until that time. The 208 staff initiated a series of meetings with representatives of the Department of Environmental Regulation and the Department of Transportation. Through these meetings, agreement was reached to modify the engineering plans to avoid stormwater discharge from the road. The plans are now being completed.

Significance

The water quality management agency identified a potential water quality problem and initiated action to deal with it. The revised engineering plans, when completed, will protect five lakes from significant amounts of stormwater discharges. In addition, the 208 agency was able to initiate coordination between two state agencies.

Central Florida Regional Planning Council (Bartow, Florida)

Performance Indicator: The water quality management agency has set up a "Waterline" for citizens to call in local water quality problems.

Public Outreach Program

In an effort to involve the public in the 208 program, the water quality management agency installed the Waterline, a telephone alert system by which citizens in the three-county water quality study area can bring cases of discharge violations and health or safety hazards in the area's open waters to the attention of the 208 staff.

The Waterline is a direct telephone line manned by an answering service on a twenty-four hours-a-day, seven-days-a-week basis. All calls received on the Waterline are returned by the staff within twenty-four hours (weekends excepted) and a thorough examination of the problem is conducted. Out-of-town callers can call collect.

How It Works

The Waterline receives about 10 calls per week. In one case, in the city of Lakeland, there is a shopping mall next to Lake Parker. An anonymous Waterline call reported that the maintenance company was dumping parking lot sweepings on the lakeshore. The 208 staff reported the situation to the Florida Department of Environmental Regulation (FDER). It took two visits from FDER officials and the threat of court action to force the company to clean up the dumping pile.

Significance

The Waterline has two levels of significance. One is the impact of handling individual calls. The case mentioned above generated city officials' interest in the 208 program for the first time. Response to this call showed Lakeland officials that the water quality management program can help to solve local problems.

In general, the Waterline gives citizens a direct line of communication to the 208 staff. It also gives the staff a sense of public priorities and issues and helps to identify new problem areas. The Waterline can be maintained indefinitely at small expense.

Tallahassee-Leon County Planning Department (Tallahassee, Florida)

Accomplishment: The Tallahassee-Leon County Planning Department through its 208 program, developed a drawdown project to improve water quality on a lake undergoing advanced eutrophication. With the support of almost all residents of the lakeside area, the Leon County Commission approved the project which is now underway.

Background

Lake Munson, in Tallahassee, was severely eutrophic and could not be restored naturally. The 208 staff developed a drawdown proposal to partially restore the lake and held public hearings in October, 1976, to consider the project.

Public Involvement

Lake Munson was developed by wetland drainage, and the traditional concern of lakeshore residents had been to maintain water levels. As the algae cover grew, water quality also became a major concern. The public hearing on the drawdown project was the first time residents were consulted. In response to the information presented at the hearing, the citizen-organized Lake Munson Preservation Committee circulated a petition in favor of the drawdown project as a way to improve lake quality. The Preservation Committee obtained signatures from almost all lakeside residents and presented the petition to the Leon County Commission. The County Commission approved the drawdown project in April and it was soon under way.

Technical Solution

The drawdown is intended to consolidate sedimentary and nutrient substances, stabilizing them by oxidation. It is also expected that significant proportions of trace metals found in the lake's waters will oxidize so they will no longer be soluble in water.

The drawdown was accomplished by opening a dam at one end of the lake. The project was begun this spring, and approximately 60-80 percent of the lake bottom surface has been exposed and is covered with thick vegetation. Monitoring to evaluate the effectiveness of the drawdown is being conducted by local, state and federal agencies and is expected to continue over several years.

If the drawdown is successful, the Florida Game and Fresh Water Fish Commission is proposing to restock the lake with fish. It is anticipated that the drawdown must be repeated on a three to five year cycle until controls for nutrient sources are in place (see the next entry).

Significance

This project is significant for two reasons. First the water quality management agency, by identifying a water quality problem that directly affects many residents and by proposing an immediate short-range solution, stimulated public involvement and support. This public involvement was crucial to local acceptance of the drawdown project.

Second, the drawdown project is a highly visible attack on the eutrophication that plagues Lake Munson. The drawdown is only a temporary solution dealing with the effects of a pollutant rather than eliminating the sources of lake degradation. But the Tallahassee-Leon County Planning Department, as a major part of its water quality management plan, has developed a program for controlling the nonpoint sources of pollution. The program is much more likely to receive citizen input and active support since it builds on the lake drawdown project and offers a long-term solution from an agency that is already tackling lake quality problems.

Tallahassee-Leon County Planning Department (Tallahassee, Florida)

Performance Indicator: The water quality management agency is developing a comprehensive program to control urban runoff which is the major source of nutrients causing eutrophication of Lake Munson and is seeking implementation through adoption of a stormwater ordinance.

Background

Two studies have been performed to identify the source of nutrients affecting Lake Munson. The first, done by EPA, identified a seven mgd secondary treatment plant discharging into the lake and urban stormwater runoff as contributing about equally to nutrient buildup. A later study done for the 208 program indicated that approximately 60 percent of the nutrients in the lake come from urban storm runoff. In addition to the nutrients, there is a problem with floating debris from runoff; and significant concentrations of lead and other heavy metals have been found in the bottom sediments.

The 201 plan for the treatment facility on the lake calls for land application of effluent by 1980. The city is beginning construction of the facility, so this pollutant source will be eliminated.

The lake was formed by draining wetlands in the area and constructing drainage ditches to convey runoff into the lake. Several years before the 208 program got underway, the county had prepared a draft master drainage plan for flood control and attempted in 1975 to pass a stormwater ordinance to implement the plan. The ordinance generated so much controversy that the County Commission withdrew the proposals and put the plan under advisement.

Stormwater Control Program

The County Commission felt the 208 program offered an opportunity to reevaluate the drainage plan. The 208 technical staff, working with the county engineer and various advisory boards, completed a technical review and revision of the plan and ordinance to include water quality as well as quantity considerations. In addition, the draft master drainage plan includes both structural and nonstructural solutions to the urban stormwater runoff problem. Solutions include restoration of wetlands, developing trash removal structures and land use controls. The drainage plan has already gone through the public hearing process and is now under final review. The issue that remains to be resolved is financing for the program. Several alternatives are being considered, including a bond issue to construct facilities and some form of user charge system to cover the operating costs.

When a funding program has been developed, the ordinance incorporating the specific recommendations in the drainage plan will go before the Tallahassee City Commission and the Leon County Commission. Action is expected by December, 1977 at the latest.

Management Agency

The city of Tallahassee had previously negotiated an agreement that assigns all drainage system management responsibility to the County Commission. Therefore, the management structure and authority are already in place. By turning to the 208 program as a means of reviving and revising the drainage plan, the Commission has already shown a commitment to implementation of the ordinance.

Significance

Development of a master drainage plan is significant for two reasons. First, the water quality management staff built extensively on existing work and capitalized on Leon County's commitment to develop and implement a master drainage plan. The final plan has been expanded from a flood control program to a comprehensive urban runoff control program. Also the agency is making effective use of the county's existing drainage management authority.

Second, the agency's strategy for securing approval and implementation is also important. The drainage management plan went to public hearing alone. This gave the public the opportunity to concentrate on a specific set of issues relating to flood control and urban stormwater runoff control, rather than having to deal with a diffuse set of recommendations. The public hearing was held just as the Lake Munson drawdown project was getting underway, so there was already heightened interest in water quality problems and potential solutions.

The water quality management staff has recognized that implementation of specific controls is dependent on presenting the city and county with an ordinance that covers all program elements. An adequate funding program is integral to effective stormwater management, and the water quality management agency will not ask the city and county to act until the funding element is complete.

Chattanooga Area Regional Council of Governments
(Chattanooga, Tennessee)

Performance Indicator: The water quality management agency assigned a staff person to work with the planning commissions for the city of Chattanooga and Hamilton County to develop an erosion control ordinance which is informally applied by the planning commissions through their review authority.

A water quality management staff member on assignment to the 208 program from the Soil Conservation Service worked with the Chattanooga and Hamilton County Planning Commissions to develop an erosion control ordinance. Together they looked at the suitability of soils in the area for various uses and developed measures to control construction runoff and roadbank erosion on the basis of their study. Both planning commissions have review authority over proposed projects. The planning staffs identified those erosion control measures in the draft ordinance which they can apply in reviewing project proposals with only an administrative change in procedures. These criteria are now included in the review process. When they can demonstrate the effectiveness of these measures the commissions will seek full implementation by presenting the ordinance for adoption by the city and county.

Significance

This activity is significant because the city and county planning commissions have made a commitment to implementing erosion controls designed specifically for water quality improvement. The planning staffs hope to demonstrate, as far as possible, the effectiveness of these controls in order to build support for adoption of the ordinance to fully implement the recommendations.

Knoxville-Knox County Metro Planning Commission
(Knoxville, Tennessee)

Accomplishment: The water quality management agency reassessed plans for upgrading treatment facilities and effected cost savings by determining that tertiary treatment would produce negligible improvement in water quality, due to nonpoint source contributions and low dissolved oxygen problems caused by upstream dams.

Background

Several years before the start of the 208 program, the city of Knoxville received a court order to expand and upgrade existing treatment facilities or to develop alternative facilities. A recommendation for a regional facility received strong opposition. A plan was finally developed for expansion of two treatment facilities and upgrading them to tertiary treatment.

Cost Saving Solution

Water quality analysis for the 208 program indicated that municipal point sources are the most serious pollution sources in the Knoxville area. Further modeling under the water quality management program showed that incremental improvement in water quality from secondary to tertiary treatment was negligible, due to nonpoint source contribution and low dissolved oxygen problems caused by upstream dams.

The solution developed on the basis of these findings was to expand and upgrade two facilities to better than secondary treatment for some constituents but to secondary treatment as adequate for others. The Tennessee Water Quality Control Division and EPA reduced effluent limitation requirements accordingly. Construction will be underway by June, 1978.

Significance

The revised plans for upgrading of facilities in Knoxville will result in almost the same degree of improvement in water quality and a cost savings of $2 million to $3 million. The findings of the modeling effort also identified the relative importance of nonpoint source contributions, and raised the issue of the most effective commitment of resources for water quality improvement.

First Tennessee-Virginia Development District
(Johnson City, Tennessee)

Accomplishment: Through water quality management assistance and coordination, a regional treatment facility will be constructed resulting in considerable cost savings. The water quality management agency is assisting two cities and a county to create a regional management authority for the facility.

Background

Bristol, Virginia, Bristol, Tennessee, and the outlying areas of Washington County, Virginia were covered by two separate poorly coordinated 201 plans which proposed three new treatment facilities for the area. The mayors of the two towns are on the 208 Policy Advisory Committee for the First Tennessee-Virginia Development District. The 208 staff reviewed the 201 plans and found that one regional facility would be more cost effective.

Political Agreement

The mayors and members of the Boards of Commissioners for the two cities and a representative from the county are meeting regularly with the 208 staff. Agreement has already been reached on upgrading an existing facility to serve as the regional facility and the project is under way. This single facility will result in a cost savings of approximately $42 million, including $30 million for construction of one of the additional plants and $12 million from upgrading the existing plant rather than constructing a new facility.

Management Structure

The 208 staff is continuing to meet with the city and county representatives to work out the details of creating a regional management authority. All three entities have agreed to the concept of a single management authority. A lawyer has been retained through the water quality management program to prepare the necessary resolutions to create the authority, so that the resolutions will be consistent and will come before all three entities for action at the same time. The cities and county are expected to act by the fall of 1977.

Significance

This accomplishment is particularly significant, in that the water quality management agency was able to effect a cost saving of approximately $42 million by revising the 201 plans.

Through the impressive cost savings that the water quality management agency was able to secure, it demonstrated its commitment to finding cost effective and locally acceptable solutions to water quality problems. This commitment has helped the agency to overcome some initial opposition and to obtain preliminary agreement for a regional management authority for the facility.

First Tennessee-Virginia Development District
(Johnson City, Tennessee)

Performance Indicator: A stream assimilation study carried out by the water quality management agency will lead to a stream reclassification, allowing for less stringent treatment requirements while protecting high quality waters.

Reclassification

All secondary tributaries in Tennessee are classified as water quality limited on the basis of literature values, since the state did not have sufficient resources to complete in-stream sampling. The 208 agency completed a stream assimilation study on Brush Creek, one of three streams in the 208 area classified as water quality limited. The study indicated that, in fact, the water is of high quality due to the reaeration capacity of the stream. On the basis of these findings, the state is in the process of assigning new waste load allocations to municipalities and industries on the stream.

Significance

The revised wasteload allocations will result in substantially reduced treatment costs for the 20-30 industries and three municipalities located on the stream, while protecting existing water quality. In addition, it will allow room for industrial expansion along the stream.

The state and the water quality management agency were equally surprised by the results of the study. On the basis of this study, the water quality management agency is pursuing funding for similar studies on the other two water quality limited streams in the area. The state is using this as an example of the importance of additional state funding for in-stream sampling on secondary tributaries throughout the state.

First Tennessee-Virginia Development District (Johnson City, Tenn.)

Performance Indicator: The Industrial Subcommittee of the 208 agency's Technical Advisory Committee, through investigation of industrial and municipal treatment compatibility, found that an industry could tie into a municipal system and realize cost savings for both the industry and municipality.

Background

The First Tennessee-Virginia area has a large number of industries, mainly chemical, light manufacturing and instrument manufacturing. Most of the large industries provide treatment and discharge directly into streams. The Industrial Subcommittee of the Technical Advisory Committee, made up of representatives of some of the major industries in the area, is looking at industrial treatment problems and studying the feasibility of combining wastes either with municipal or other industrial wastes for treatment.

Technical Solution and Political Cooperation

One industry, Beaunit, treats waste in-house using an expensive physical-chemical process and does not meet discharge requirements. In order to meet NPDES requirements Beaunit would have to install ammonia stripping columns.

Beaunit found it could treat its ammonia wastes in a nearly domestic system. The municipal treatment facility in Elizabethton, where the industry is located, now provides secondary treatment and is scheduled for expansion.

With the assistance of the Technical Advisory Committee, the municipality and Beaunit reached an agreement to treat wastes from the plant in the municipal facility. This involves a small additional expansion in the proposed size of the treatment facility, which the industry will pay for through user charges and industrial cost recovery.

Significance

This agreement is significant for two reasons. Expansion of the municipal treatment facility to handle wastes from Beaunit will result in cost savings for both the municipality and the industry. It will also result in water quality improvement since Beaunit's wastes will be treated to meet discharge requirements.

Secondly, the agreement was reached with the assistance of the Technical Advisory Committee, and especially its industrial representatives. Some major industries in the area are very active in using the 208 program as a vehicle to coordinate their efforts at compliance with NPDES requirements. The Technical Advisory Committee's success in this case will raise their credibility both with industries and municipalities as they attempt to find solutions for other industrial treatment problems.

REGION V

WISCONSIN

Dane County Regional Planning Commission (Madison, Wisconsin)

Accomplishment: The Dane County, Wisconsin Water Quality Management agency, working with the Soil and Water Conservation District, generated the implementation of improved agricultural nonpoint source control measures.

Background

At the outset of its 208 program, the Dane County Regional Planning Commission recognized that agriculture was a major source of pollution in the area. Farmers were therefore identified as a key public that the water quality management program had to reach. In the past, many farmers had been opposed to land use planning and regulation, and the water quality management agency consequently emphasized land management techniques that would be of practical benefit to them.

To develop an effective agricultural nonpoint source control program, the 208 agency worked with the local Soil and Water Conservation District. An early backer of the 208 program, the SCD provided technical assistance and public participation that was instrumental in achieving the implementation of improved best management practices (BMPs).

Implementation of Best Management Practices

The water quality management program succeeded in broadening the scope of best management practices that Dane County farmers apply. In 1976 Dane County initiated an agricultural cost-sharing program, based on a study that preceded the 208 program. Dane County and the Agricultural Stabilization and Conservation Service (ASCS) each contributed $50,000 for the program, which provided funds to local farmers on a 50-50 cost-sharing basis. These county and federal monies are complementary; county funds are used for projects that are not eligible for ASCS funds.

In the first year of the cost-sharing program, minimum tillage and stream bank fencing were emphasized; the 208 program expanded these practices in the second year. Farmers were encouraged to vary their tilling on demonstration plots to assess the differences among no, minimal, and conventional tillage. They were also advised to install measures that complement stream bank fencing, such as off-stream watering points and cattle crossings.

Technical Assistance

Before the Dane County Regional Planning Commission (RPC) was designated as a 208 agency, the RPC negotiated an agreement with the Soil and Water Conservation District for performing the agricultural portion of the 208 work plan. The water quality management agency hired two staff members to carry out water quality monitoring and assess agricultural nonpoint source pollution. These staff members were assigned and accountable to the SWCD, even though the RPC paid their salaries.

Their analysis revealed that nutrients and sediment from agriculture were a major cause of pollution in Lake Mendota. Specifically, weed and algal growth from accelerating eutrophication caused fluctuating dissolved oxygen levels.

Public Participation

Monitoring sponsored by the 208 program enabled the Soil and Water Conservation District to convince the farming community that agriculture was a significant water quality problem. The water quality management agency depended on the SWCD to carry this message to its constituents - the local farmers. Public participation activities in Dane County operated at the countywide and community (roughly watershed boundaries) levels; the SWCD chaired the community meetings in the rural portions of the study area.

At the early community meetings in 1976, farmers were critical of the RPC, because they perceived its land use planning functions as restricting them. The Soil and Water Conservation District improved attendance and attitudes of farmers at recent community meetings by identifying benefits that they could reap from the water quality management program. The farming community response to Dane County's cost-sharing program for agriculture demonstrates the SWCD's positive influence.

Significance

208 is a political and technical program, and successful implementation requires addressing both of these facets. The Dane County 208 agency recognized that involving the SWCD, which wanted to participate and had the confidence of farmers, would promote adoption of its technical proposals for agriculture.

Support of the cost-sharing program in the farming community reflects the commitment to water quality management that the Dane County 208 has generated. The enthusiasm for this agricultural nonpoint source control program also attests to the cooperative attitude that 208 has achieved with the assistance of the Soil and Water Conservation District.

Southeastern Wisconsin Regional Planning Commission
(Waukesha-Milwaukee, Wisconsin)

Accomplishment: The Southeastern Wisconsin Regional Planning Commission provided assistance in developing a regional wastewater treatment facility for two towns.

Background

Two communities located on a lake within the 208 planning area were contributing to eutrophication of the lake. Heartland, located at the upper end, has a sewage treatment plant which discharges into the lake. Discharges from the plant were affecting surrounding wetlands as well as the lake.

Delafield, located at the southern end of the lake, is a city of approximately 2,000 people with no central sewerage system. All treatment in the town is by individual septic systems. Combined wastes from these two towns were seriously affecting the lake. Eutrophication was accelerating and the lake's many bays and inlets were filled in with algae and almost useless. There was also a noticeable impact on fish.

Choosing a Regional Alternative

Residents of Heartland considered upgrading their facility, but only to provide service for Heartland. Delafield would have had to take care of itself. The 208 agency proposed that a regional treatment facility discharging below the lake be constructed at Delafield to serve both towns, and that the Heartland plant be abandoned. There was some opposition to this proposal, and the citizens of Heartland had to be convinced that there was sufficient benefit for them to justify the increased cost of abandoning their plant for a new facility.

First, the Southeastern Wisconsin Regional Planning Commission documented the water quality problem at Delafield and identified relative contributions from each town to degradation of the lake. The water quality management agency then costed alternatives and was able to show that a regional facility for the two towns was most cost effective and would result in the greatest improvement in lake quality. A sewer district with representatives of the two towns and the county was formed to be the management agency. A 201 Step 1 plan has been completed for the facility and Step 2 is under way.

Significance

Through data collection and analysis to identify the relative contributions from Heartland and Delafield, the water quality management agency was able to clearly define the problem for local residents. The water quality management agency was then able to justify a regional treatment facility through analysis of the cost and treatment effectivteness of the alternatives being considered by the two communities. The water quality management agency provided the necessary technical background information for the communities to decide on the treatment facility which will result in the most effective clean-up of the lake.

Wisconsin Department of Natural Resources (Madison, Wisconsin)

Performance Indicator: The Wisconsin Department of Natural Resources Board adopted, as part of its Administrative Code, a sewer extension policy which was developed through the 208 program.

Background

The Wisconsin Department of Natural Resources (DNR) is responsible for approving all sewer extensions in the state and was faced with lawsuits for allowing extensions to treatment plants which do not meet existing standards.

Policy Adoption

As one of the first tasks in the water quality management program, the planning staff developed a sewer extension policy which was included in revision of the DNR's administrative code. The policy which is now in effect for the state prohibits any sewer extension or new hookups in a community where the sewage treatment plant does not meet standards for secondary treatment or for more advanced treatment where stream standards require it.

This section of the code went to public hearing and was the subject of extensive media coverage and public discussion. The DNR proposals were adopted without major revisions in the fall of 1976.

Potentially, over half the towns in the state could be affected by this policy as they come in with proposals for sewer extensions. An exception can be granted if several criteria are met. The most notable is if a community submits an acceptable schedule for meeting the 1983 goals of the Federal Water Pollution Control Act without the use of state or federal funds. Some towns have received exceptions under this provision.

Significance

This restrictive sewer extension policy is a strong incentive for communities to act to meet 1983 water quality goals, if they wish to respond to pressures for growth.

Another result of this program has been a noticeable increase in the number of permit applications for installation of septic systems. The 208 staff anticipated this problem and began to develop a program for septic system management which is now, in part, before the state legislature (see below).

Wisconsin Department of Natural Resources (Madison, Wisconsin)

Performance Indicator: The Wisconsin Department of Natural Resources Board approved a comprehensive septic system management program, developed through the 208 program, and implementation is being sought through one of two alternatives.

Background

Septic system management has developed into a statewide issue in Wisconsin; and, especially with implementation of a restrictive sewer extension policy in the fall of 1976, the need to have adequate control over new septic installations became more pressing. The water quality management staff rearranged their work schedule to begin work on a septic system management program in the fall, 1976. The 208 staff prepared a "Report on Private On-Site Collection Systems" which included an inventory of problems, analysis of alternatives, and recommendations for a comprehensive septic system management program.

Permit Authority and Funding

Currently the Department of Health and Social Services (DHSS) has responsibility for administering septic system management and much authority has been delegated to the counties. The permit fee is $1.00 and there is no funding available for management. There are also no standard criteria for making decisions on siting, design, etc.

The proposed system would raise the permit fee to $100.00, eighty percent of which would be retained by the county to fund the program. Each county would also be required to adopt a uniform code for siting, construction, inspection, and operation and maintenance.

Management Authority

The recommendations initially included a transfer of management authority from the DHSS to the DNR. The State legislature did not approve this transfer of management authority.

However, the DHSS participated in developing the recommendations for the septic system program and is in agreement with all but the transfer of management authority. Before the legislature had acted on the management proposal, the DNR Board and the Secretary of DNSS agreed that if the legislature defeated the proposal, the two agencies would appoint an interagency committee to implement the remaining recommendations. This effort is under way.

Significance

The water quality management staff has prepared a comprehensive septic system management program. The proposed program includes: requirements for operation and maintenance of existing systems, criteria for siting new septic systems, alternative management authorities and an adequate funding program.

The water quality management staff in DNR worked with the existing management agency, DHSS, to prepare recommendations, so there is a commitment to implementation of the management program. The two agencies also agreed on alternative approaches to achieving implementation of the recommendations, depending on the outcome of legislative action on the management agency.

REGION VI

OKLAHOMA

Association of Central Oklahoma Governments (Oklahoma City, Okla.)

Performance Indicator: A landowners' association requested and independently used 208 interim outputs to influence an Army Corps of Engineers' decision on the size of a proposed lake.

Members of the Witcher Landowners' Association own land on or bordering the site of a lake proposed by the Army Corps of Engineers. The association's main concern was that following the proposed elevation of the lake, enough land would be withdrawn from the tax base to endanger the local independent school district. A second concern was that urban and rural runoff would make the lake water of poor quality for water supply, which is one of the proposed uses.

Through information disseminated by the water quality management agency, the Landowners' Association became aware of the areawide 208 program. The association requested copies of 208 interim outputs on water quality standards and criteria, water quality management evaluation, and point source pollution inventory. The members of the association carefully analyzed this data on their own and obtained technical assistance that confirmed their water quality concerns for the proposed lake.

The Landowners' Association presented its analysis to the Corps of Engineers. At a subsequent meeting, the Corps announced the decision to lower the elevation of the lake. The Corps did not indicate the basis for the decision, but its reassessment of the original proposal indicates that the Landowners' Association established credibility by using technical data to support its concerns.

Significance

The fact that the Witcher Landowners' Association turned to the water quality management program for support indicates that the Association of Central Oklahoma Governments was able to identify the 208 program as a local problem solving program. The association's success lends legitimacy to the data generated through 208. Through such positive contacts with local citizen groups, the water quality management agency is building a constituency to support the water quality management plan as it is developed.

Association of Central Oklahoma Governments (Oklahoma City, Okla.)

Performance Indicator: The water quality management agency set up a 208 "Hotline" for citizens to call in their water related problems.

One of the public participation goals of the Central Oklahoma 208 program is to establish credibility with the public and to demonstrate how the water quality management program relates to local concerns. The agency installed a 208 "Hotline" which operates 24 hours a day to take citizen calls reporting water related problems and requesting information or expressing opinions on the water quality management program. The service has been publicized through educational television authority and local television public service announcements. Periodically, a localized press release goes out for coverage in weekly newspapers.

Since Oklahoma's water resources are limited and there are few large bodies of water, problems that have been reported so far have been small and very localized, such as standing waters that pose a potential health threat. When a call comes in, the 208 staff reports the information to the appropriate State or local agency. In one case, the staff mediated with a state agency to solve the problem. The staff then follows up with the caller to verify that the problem has been resolved.

Significance

Through the Hotline, the 208 staff is able to respond directly to residents' concerns and to present the water quality management program as an effective problem solving mechanism. Now that the Hotline is in place, it can be maintained indefinitely as a public service, since the ongoing resource commitment is small.

North Central Texas Council of Governments (Arlington, Texas)

Accomplishment: The water quality management program for the Dallas-Fort Worth area is implementing a regional wastewater treatment management system and is also investigating its implications for nonpoint source control and regional planning and development.

Implementation of a Wastewater Treatment Management System

The North Central Texas Council of Governments (NCTCOG) has formulated a water quality management program that is noteworthy in three respects.

First, the water quality management agency is implementing a regional wastewater treatment system, based on previous basin planning in the region. NCTCOG has updated the Upper Trinity River Basin Comprehensive Sewerage Plan, which it prepared in 1970. This areawide agency is also generating support for the regional sewerage plan among State and local officials and the general public.

Assisted by the 208 program, implementation of most original recommendations proposed in the areawide sewerage plan is proceeding on schedule. When construction and other improvements are completed, nineteen regional facilities will serve the region, seven of which address urbanized needs.

There are currently four major public entities that contract with a number of municipalities to operate, maintain, and expand their sewage treatment plants. The management framework for each regional operation is a System Customer Council, composed of representatives from customer cities. These Customer Councils advise the operator on all phases of the system, including capital needs, treatment standards, and rates.

This management structure, in turn, is integrated into the water quality management program by means of a Water Quality Council. NCTCOG established the Council, whose membership is drawn from the major system operators and their Customer Councils. The Water Quality Council performs planning and advisory functions relating to regional sewerage plan up-dates, proposed Federal and State legislation, comprehensive water quality planning and permits issued by the Texas Water Quality Board (TWQB).

As the agency in charge of both the basin planning and 208 programs, NCTCOG took the opportunity of using the regional sewerage planning to accelerate the water quality management process. The areawide agency anticipates preparing two plans in the initial grant period, instead of the single plan required by the Act, and has completed the 1977 annual plan. As State and EPA staff are members of NCTCOG advisory committees, they review and comment on plan drafts. This arrangement should expedite the formal review and approval process of each annual plan. Thus 3c and 208 have been mutually beneficial in the Dallas-Fort Worth region.

Analysis of Nonpoint Source Pollution

Second, NCTCOG has increased public awareness of nonpoint source pollution. Dramatic evidence of the severity of pollution from nonpoint source runoff appeared in 1971. A major storm event brought oxygen levels close to zero and approximately 200 tons of fish were killed.

The water quality management program is performing a thorough assessment of nonpoint source pollution. A preliminary assessment has been completed, which indicates that urban runoff from stormwater and construction activities may be major NPS problems. Regulatory programs will rely on the results of this assessment. Anticipating the need for nonpoint source controls, the water quality management agency recently sponsored a meeting with home builders to discuss on-site detention facilities as alternatives to storm sewers.

Essentially NCTCOG and its member jurisdictions have acquired a clear conception of the nature of regional water quality problems and alternative solutions. They recognize that there is a trade-off between levels of sewage treatment and abatement of nonpoint source pollution.

The TWQB proposed stringent standards of 5 parts per million (ppm) BOD and 5 ppm suspended solids for municipal treatment capabilities in the NCTCOG region, as compared to 10 ppm BOD and 10 ppm suspended solids set in the regional sewerage plan. A hearing was held on this proposal in May. A coordinating committee with representatives of NCTCOG and member governments, including the cities of Dallas, Fort Worth, Garland and Mesquite; North Texas Municipal Water District; and Trinity River Authority, met weekly for three months to prepare testimony for the hearing.

Based on their testimony, the TWQB decided not to require treatment levels more stringent than 10/10. This decision will result in a savings of at least $100 million for construction of municipal treatment facilities. This gives local governments greater flexibility to balance regional point source and nonpoint source control efforts. NCTCOG's emphasis is on finding the most cost-effective pollution abatement techniques and there is considerable sentiment that these will prove to be nonpoint source controls. The member governments will rely on information furnished by the water quality management program to make an economically and environmentally sound public investment choice.

Regional Planning and Development Decision-making

Third, the water quality management process is incorporating water quality into comprehensive planning and development decision-making for the region. NCTCOG is consolidating input from several water quality management technical committees into a Preferred Regional Development Program (PRDP). This program integrates five functional areas: transportation, sewerage, water supply, housing and land use.

The water quality management program encompasses the sewerage and water supply elements. PRDP is designed to measure the impact of alternative development patterns, using an urban growth simulation model keyed to the Dallas-Fort Worth area.

Based on this planning program, which is scheduled for refinement over a five-year period, a preferred regional development policy will be adopted in 1980. The selected regional development policy will provide a comprehensive framework for specific planning and development activities. Given the local commitment to regional wastewater treatment and concern over nonpoint source pollution, the water quality management program will have a major impact on decisions relating to the type, amount, and location of future growth.

REGION VIII

COLORADO

Larimer-Weld Regional Council of Governments (Loveland, Colorado)

Performance Indicator: The Larimer-Weld Regional Council of Governments developed a "Utility Management Handbook", which enables small communities to evaluate the financial feasibility of proposed wastewater treatment alternatives.

Background

As part of its water quality management program, the Larimer-Weld Regional Council of Governments reviewed facility planning that consultants had performed for local communities. In several cases, the water quality management staff questioned the population projections and recommended wastewater treatment systems. On the one hand, they did not think that demographic trends justified the growth rates that were estimated. On the other hand, they found that user chargers were not spelled out, and that consequently the communities could select an alternative that might prove to be beyond the means of users. The water quality management agency produced the "Utility Management Handbook" to help local officials evaluate proposed facility plans in light of their own growth rates and financial situations.

Analysis of Financial Feasibility

While the "Utility Management Handbook" provides guidance on planning and delivery of wastewater service for small communities, the crux of the analysis involves financial policies. The bottom line for any facility plan is the charge that individuals pay for wastewater service, and this handbook enables local officials to estimate whether residents will be able to afford a recommended system.

The handbook contains a table which projects annual costs per household, based on the amount borrowed to finance wastewater system improvements, population size, debt service, and operating and maintenance expenses. This table shows how user charges vary, depending on growth rates and levels of investment in sewage treatment facilities. As the number of new taps increases, the cost per user drops, since the same expenses are shared by more users. Conversely, if population does not grow as anticipated, the fixed costs are borne by fewer users and may reach a prohibitive level.

Adapting this table to specific facility plans, local officials can project the range of user charges and assess the financial feasibility of proposed improvements. This handbook was well-received in the Larimer-Weld area, where communities have used it to estimate the risk of opting for a particular wastewater treatment alternative.

Significance

This "Utility Management Handbook" provides practical guidance to small communities that are expanding their wastewater treatment service. By breaking down the costs of new facilities to show the charges that individual users would pay, it allows local officials to gauge the financial feasibility of a given alternative. The handbook thus promotes economically sound wastewater treatment management.

Lewis and Clark County Conservation District (Helena, Montana)

Accomplishment: Approval of a sediment control ordinance by local referendum, as a result of technical assistance and public participation provided under a water quality management program demonstration project.

Background

In response to the 1972 Federal Water Pollution Control Act Amendments, the Montana legislature requested the State Department of Natural Resources to head up a study of sediment control problems and legislative issues. The study yielded three major findings: 1) erosion is a serious water pollution problem in Montana; 2) existing enabling legislation provides sufficient authority to address erosion; and 3) any sediment control program should be locally administered and enforced.

The Montana Conservation District law permits local conservation districts to develop soil conservation ordinances, which must be adopted by local referendum. The ordinances are administered locally and enforced through Conservation District Courts. This enabling legislation had never been carried out, when EPA funded a demonstration project, which included a pilot program to promote the enactment of a sediment control ordinance in Lewis and Clark County.

Lewis and Clark County was selected for this pilot program because it was willing to participate and its land use patterns and erosion problems typify Montana conditions. Most of the land in the county is divided between Federal agency (48%) and private (47%) ownership. Agriculture is the primary industry, and most operators raise livestock. Accordingly, the largest land use in the county is rangeland, which accounts for 65% of the acreage, followed by forest, with 25% of the total.

The major sources of erosion and sedimentation are: 1) subdivision development in the urbanized area (the county does not include the incorporated cities of Helena and East Helena); 2) irrigated agriculture, and 3) overgrazed rangeland.

WQM-sponsored Technical Assistance and Public Involvement

The 208-funded demonstration project paid for three staff members: 1) a program manager hired by the Lewis and Clark County Conservation District; 2) a water quality specialist hired by the State Department of Health and Environmental Sciences; and 3) a sedimentologist hired by the State Department of Natural Resources and Conservations.

Financing of Best Management Practices

Since financing of best management practices depends on local acceptance of the sediment control ordinance, it would have been premature for the pilot program to specify funding sources before the referendum had passed. The Lewis and Clark County study nonetheless identified potential funding sources at all levels of government.

Agricultural Stabilization and Conservation Service (ASCS) cost-sharing and Small Business Administration low-interest loans were identified at the Federal level. Two possible State sources were proposed: 1) an appropriation from the State legislature for operating costs and 2) grants or low-interest loans from the Montana coal severance tax, contained in the State's 1975 Renewable Resources Act. Finally, the Lewis and Clark County Conservation District is authorized to levy a property tax of 1 1/2 mills, part of which might be applied to support the operating expenses.

It is important to note that most of these funding sources cover only part of the cost of best management practices. Implicit in this survey, therefore, is the assumption that local ranchers, farmers, and developers will help pay for improved sediment and erosion controls. This willingness to cooperate in solving a serious nonpoint source of pollution led to the passage of the Lewis and Clark County sediment control ordinance.

Significance

This accomplishment demonstrates the crucial role of the water quality management program in heightening public awareness of nonpoint source pollution and gaining support for best management practices to improve water quality. Lewis and Clark County possessed the enabling legislation required to establish a regulatory program for sediment and erosion control; it lacked widespread local commitment to solve this nonpoint source problem.

Technical assistance and public participation funded by the 208 program were the missing links. The water quality management program enabled concerned State and local officials to inform and work with citizens and build consensus for implementing best management practices designed for local conditions.

Two policy advisory committees (PAC), State and local, were established to assist the Conservation District in developing land management practices and the sediment control ordinance. Both the 25-member State PAC and the 60-member local PAC addressed the following subjects: irrigated cropland, dry cropland; rangeland, forest land, construction and subdivisions, information/education, and financing/cost effectiveness.

The public involvement process emphasized the following advantages of sediment control: a) good conservation practices pay, b) stewardship of the soil resource is necessary for future generations, c) prevention of soil erosion is less costly than remedial measures, d) local control and administration of erosion and sediment control regulations is efficient, and e) accelerated soil erosion and resulting sediment may violate State water quality standards and laws.

Implementation of the Lewis and Clark Sediment Control Ordinance

On June 20, 1977, voters of Lewis and Clark County approved the enactment of a sediment control ordinance. This ordinance incorporates land management standards (best management practices) developed by: the Soil Conservation Service for agriculture; the Montana State Forestry Committee for silviculture, and the Lewis and Clark County Conservation District for subdivision construction. These best management practices (BMPs) are based on site-specific soil, climate, and use characteristics.

Implementation of a Conservation District-approved erosion and sediment control plan is the primary means of complying with these standards/practices. Erosion and sediment control plans are optional for agricultural activities, as long as standards are met or exceeded and no erosion problems occur; they are mandatory for most construction/subdivision activities. In addition, operators must either prepare an erosion and sediment control plan or give the Conservation District notice before starting forestry activities.

Any land occupier, District Supervisor or State or county water quality official may file a complaint alleging that accelerated erosion or sediment damage has taken place. If a violation of the ordinance is verified by the Conservation District, the land occupier is given an opportunity for voluntary compliance. If the violation is not corrected, the District Supervisors are authorized to issue stop work orders and/or impose fines of up to $500 per day.

Sixth District Council of Local Governments (Rapid City, S.D.)

Accomplishment: The U.S. Forest Service in the Black Hills National Forest, in cooperation with the local water quality management agency, has expanded its best management practices to incorporate water quality considerations.

Background

The U.S. Forest Service (USFS) has jurisdiction over the Black Hills National Forest and has been administering best management practices in the forest for 75 years. Over the years, logging activities have expanded and have become a significant source of sediment in local streams and rivers. Working with the Sixth District water quality management agency, the Forest Service has prepared a comprehensive timber management plan and an expanded set of best management practices (BMPs) to control the environmental impact of logging practices.

Development of BMPs

Under contract with the water quality management agency, the USFS prepared a complete hydrologic study of the area and used the results to classify all streams in the national forest as high or low sensitivity. High sensivity are those streams used for drinking water and/or trout streams. Logging around these streams is more stringently regulated than around low sensitivity streams, so classified because they have no State designated beneficial uses and do not drain directly into any streams that do. Where waterside landscapes are delicate and aesthetically valuable, additional restraints are placed on logging operations. BMPs are applied within a framework of these two water classifications and two land capability classifications.

The BMPs focus on logging activities and attendant road building, tree thinning, and brush disposal. There has been a proliferation of roads to accommodate logging activities in the area, and restrictions on road construction are being implemented. There are also large stands of ponderosa pine, which must be clean cut in order to start new growth. A careful program of post-harvest clearing, reseeding, and road elimination is being implemented to foster new growth of ponderosa pines. Most controls are non-structural land management practices.

The USFS has regulatory authority over all lands within the Black Hills National Forest and is committed to implementing the BMPs which have been developed in cooperation with the water quality management agency. The Forest Service is absorbing all costs connected with implementing the expanded BMPs on Federal lands., The Forest Service has also made a preliminary commitment to continue water quality modeling to assess the effectiveness of the BMPs.

Significance

The U.S. Forest Service, working with the 208 agency identified the sediment/erosion problem in the Black Hills National Forest and identified solutions which the Forest Service is now implementing. The USFS has committed its own funds to implement the expanded BMPs and has made a preliminary commitment to continue water quality monitoring to document the effectiveness of these management practices.

Since the USFS has authority over vast tracts of forested land, the commitment to water quality improvement in the Black Hills is particularly important. In the Black Hills area, large amounts of forested land are now subject to BMPs developed specifically to improve water quality. Success here will help to justify extension of improved BMPs to state and privately owned land. It may also have an impact on other lands administered by the USFS.

Development and implementation of these BMPs could only be achieved through close cooperation between the water quality management agency and the USFS, cooperation that will continue now that the two agencies share a common goal.

Five County Association of Governments (St. George, Utah)

Performance Indicator: Based on water quality analysis by the Five County Association of Governments, Hurricane City halted the drilling of a $240,000 well, which would have yielded contaminated water.

Water Quality Analysis

The Five County Association of Governments performed dye tests on the Hurricane City Lagoon, which was leaking, to identify surface and groundwater impacts. This sampling revealed contamination of both these water resources.

Water quality analysis further indicated that a new municipal well, which Hurricane City had planned to drill at a cost of $240,000 would be contaminated over time by lagoon wastes. By investigating the hydrology of the area, the water quality management agency demonstrated that the proposed well site would not protect this water supply from municipal point source pollution.

Technical Alternatives

Based on this 208 analysis, Hurricane City halted the planned drilling of the well and thus saved $240,000. The city had thought that its existing spring was the only available source of water but subsequently discovered additional water rights. Therefore a new well was no longer needed.

To abate pollution from the Hurricane City Lagoon, the water quality management agency proposed total containment of the lagoon on a new site and construction of a regional wastewater treatment plant. Three communities that would be served by the regional facility have approved this alternative, and facility planning is in progress.

Significance

The Five County Association of Governments prevented a potential health hazard from occurring, and its ability to correct existing municipal point source pollution will be determined in the near future.

Mountainland Association of Governments (Provo, Utah)

Accomplishment: Water quality analysis and facility planning by the Mountainland Association of Governments resulted in a $5 million cost savings for three regional wastewater treatment facilities.

Background

The State of Utah sets water effluent standards for biological oxygen demand, total and suspended solids, and fecal and total coliforms, which are far more stringent than those of EPA. Utah state officials had requested funding under Section 201 to install tertiary treatment capacity in the Timpanogos, Heber Valley, and Orem regional treatment plants. Each of these plants is or will be equipped to provide secondary treatment but is not operating up to current design specifications. Since substandard water quality exists in all streams receiving sewage treatment plant effluent, the State felt that advanced wastewater treatment would be the only way to adequately clean the water and protect public health.

Technical Contribution

208-sponsored studies, including wasteload analyses identified specific nonpoint sources of eutrophication in the receiving waters, notably livestock grazing, animal feedlots, and irrigation return flow. Based on these findings, the Mountainland Association of Governments concluded that tertiary treatment would not substantially improve water quality or was not needed to meet water quality standards.

The water quality management agency recommended against upgrading the three regional facilities to tertiary treatment, which would have cost $5 million. As an alternative, the agency proposed improvements in the existing plants so that they would function at maximum efficiency and meet secondary treatment requirements. The affected communities adopted these recommendations and thus achieved a substantial cost saving.

Political Contribution

The Mountainland Association of Governments was interested in building support for its wastewater treatment recommendations not only at the local level, but also at the State level. Since the State Division of Health controls the priority list for construction grants, the water quality management agency had to convince this State agency to accept its proposed solution, in order for the affected communities to proceed. Backed by local residents and officials, the 208 technical advisory committee presented its findings to the State, which agreed to the proposal for improving secondary treatment by the three plants at this time.

Significance

This accomplishment is significant in two respects. First, the water quality management agency produced water quality analysis that convinced local communities not to request $5 million to install tertiary treatment in three regional facilities, because pollution from nonpoint sources would preclude attaining water quality standards.

Second, the Mountainland Association of Governments persuaded State officials to accept the alternative of bringing these plants only up to secondary treatment at this time. The 208 agency thus helped orient State officials toward EPA water quality standards, an attitudinal shift that will expedite smooth functioning of the Utah construction grants program.

Southeastern Association of Governments (Helper, Utah)

Accomplishment: The Southeastern Association of Governments analyzed primary and secondary water quality impacts of energy development in Emery County, Utah and proposed technical and financial management measures that were implemented by industries and local governments.

Background

Towns in Emery County, Utah are experiencing population growth rates of two to five times their original levels, as a result of energy development. The industries that are conducting coal mining and power plant operations in the area anticipated major secondary impacts and were willing to alleviate the financial burden on the affected communities. Southeastern Association of Governments investigated the full range of water quality problems stemming from energy development to ensure a comprehensive approach to water pollution control.

In developing its water quality data base, the water quality management agency focused on salinity, a problem that had not been adequately researched in the past. The agency convinced major industries that this water quality information would be valuable to them, and they contributed $175,000 toward the salinity studies.

These salinity studies, were incorporated in the overall water quality assessment. This water quality assessment indicated that power plant operation and coal mining were causing water pollution, both directly, as a result of their activities, and indirectly, in terms of wastewater treatment demands by the population that supports the growing industries.

Heavy Metal and Salt Contamination and Corrective Measures

The water quality management program analysis indicated that major water quality impacts directly attributable to energy development involved uranium wastes and salinity. The Southeastern Association of Governments verified that a uranium processor was illegally discharging uranium wastes into local streams. The agency met with the industry to discuss the findings, and the industry accepted this evidence and agreed to cease this illegal disposal. To prevent the recurrence of this problem, new conditions were incorporated into this industry's NPDES permit, at the suggestion of the water quality management agency.

In this part of Utah, salinity is a naturally occurring water quality problem, which coal mining exacerbates. The mining activities require water, which becomes increasingly saline as it seeps through the mines. If this process water reaches groundwater, it can contaminate local water supplies, which are already inadequate to meet the growing industrial and residential demand. The water quality management agency formulated two solutions to this problem.

First, the 208 agency recommended that NPDES permits for local coal companies include provisions that support containment and diversion of process water. If the process water is contained and diverted out of the mine, so that it absorbs only a minimal amount of salt, its salinity level may be low enough to allow the water to be used for irrigation. Even if it must be treated, less treatment will be required.

Second, the water quality management agency proposed that coal companies ensure that mining activities do not threaten underground water supplies. In one case, the Southeastern Association of Governments mediated a dispute between a coal company that wanted to expand mining near a municipal spring, and the local community that thought its water supply would be contaminated. This municipality was ready to take the company to court to stop its planned expansion, when the 208 agency convinced both parties to delay action, pending the outcome of a water quality analysis. This water quality analysis, which the coal company funded, will indicate whether the proposed mining would endanger the local water supply.

Municipal Wastewater Treatment Needs and the Establishment of the Service District

Sewage was a source of water pollution before the population influx generated by energy development, due to improperly functioning lagoons and septic tanks. Increased demand for wastewater treatment service has aggravated this water quality problem. The 208 agency proposed the formation of a service district with taxing authority to finance the construction of sewage treatment and other public facilities.

Utilizing existing State enabling legislation, Emery County adopted this water quality management program recommendation and created the Polka Dot Service District, which encompasses the impact area. This service district is under the jurisdiction of the county government and levies taxes based on real property. Its primary sources of revenue are the coal mining and power plant industries that are operating in the county. Since these industries anticipated the secondary impacts that the service district is designed to mitigate, they cooperated in its establishment. The Polka Dot Service District began levying taxes in July 1977.

Significance

This accomplishment is significant in three respects. First, the Southeastern Association of Governments provided the technical assistance and coordination required to analyze water quality problems in Emery County.

Second, the 208 agency developed a financial management system, based on county establishment of a service district, to alleviate municipal point source pollution and other secondary impacts of energy development. Improved wastewater treatment is critical to eliminating water pollution from sewage, and the Polka Dot Service District has begun to collect revenues for the construction of necessary facilities.

Third, the water quality management agency facilitated cooperation between local governments and industries to control water pollution and other adverse effects of coal mining and power plant operation. The political climate was essentially favorable: Local governments welcomed energy development, as long as the resulting wastewater treatment and other public facility needs were met, and the industries accepted the costs of mitigating these secondary impacts. Nonetheless, specific disputes did arise, and the Southeastern Association of Governments took the initiative to mediate them. The water quality management agency also generated financial support from major industries for its 208 program, by demonstrating the usefulness of water quality analysis for both the private and public sectors.

Weber River Water Quality Planning Council (Weber River, Utah)

Accomplishment: Implementation of a water quality management stormwater regulatory program to control runoff in Davis County, Utah as a result of technical and institutional assistance.

Background

At the outset of its water quality management program, the Weber River Water Quality Planning Council identified stormwater runoff as a major nonpoint source of pollution in the area. Urban development had started in the flatlands of the region and then spread to higher elevations, creating more pressure on the existing storm sewers. The water quality management agency collected data on water quality and performed wasteloads and segment classifications, which had not previously been available.

The Stormwater Master Plan

The water quality management agency staff worked with the planning staffs of local governments to prepare a stormwater master plan for Davis County. Storm sewer flows were designed based on 10-year storm and peak snow flow data. This stormwater master plan covers both existing and projected development in the county. Implementation of the stormwater master plan will thus alleviate past problems, as well as prevent further problems.

Local Sharing of Responsibility for Construction of Stormwater Facilities

The 208 staff involved city officials within Davis County in stormwater management by establishing a priority list for stormwater projects. By ranking deficiencies in the existing storm sewer system and identifying those portions that deserved immediate attention, the water quality management agency was able to enlist the support of the affected municipalities in improving local facilities. All 16 cities in the Davis County Council of Governments approved the stormwater management plan which was developed under 208 and endorsed by the County Commissioners.

Davis County agreed to assume responsibility for major improvements to the storm sewer system; construction of trunk lines (including the resizing of existing culverts) and installation of major sediment basins. Local municipalities will build smaller facilities, primarily detention basins, which include parks and baseball fields. These cities will also maintain their facilities. Finally, developers are required to conform to the stormwater master plan. They must construct their developments such that the stormwater runoff rate from the area is the same before and after the project is completed.

Financing

In adopting their stormwater master plan, the Davis County Commissioners agreed to finance major improvements. There were two management alternatives available to the county: 1) a stormwater improvement district that was controlled by the Davis County Commissioners, and 2) a department of the Davis County Government. The local governments within Davis County opted for the latter alternative, and the County Commissioners established a stormwater management department in May 1977. They set a 2 mill levy, which takes effect August 1, 1977, that will raise $500,000 annually. Committed to decreasing pollution from this nonpoint source, the County Commissioners borrowed money against the mill levy, in anticipation of future revenues, to start construction of storm sewer facilities as soon as the department was established.

Significance

This accomplishment is significant in that the water quality management agency developed the strategy to implement a regulatory program for stormwater management. First, the 208 staff, assisted by city and county planners, prepared a master plan that pinpointed and ranked defects in the existing storm sewer system and proposed remedial measures.

Second, the water quality management agency gained the backing of the County Commissioners and local governments to carry out the regulatory program. These public entities accepted responsibility for: 1) installing and maintaining facilities, and 2) requiring private developers to meet standards for stormwater runoff, contained in the master plan, in their projects.

Third, the County Commissioners and municipal officials selected the management alternative that would expedite financing of needed improvements. Their commitment to improving water quality led them to establish the funding mechanism, that would allow construction of stormwater controls to begin before the water quality management planning program ended its initial phase in the Weber River area.

Weber River Water Quality Planning Council (Weber River, Utah)

Accomplishment: Implementation of pretreatment and stormwater regulatory programs on Hill Air Force Base, as a result of water quality management agency technical assistance and political involvement. Pretreatment facilities alone will cost $6 million.

Background

For the past 20 years, Hill Air Force Base has been a heavy industry in the Weber River area. Airplanes are reconditioned on the base, and the electroplating that takes place generates chromium, beryllium and other heavy metal wastes. The existing pretreatment facilities were inadequate and caused bypassing and operating problems at the North Davis County municipal sewage treatment plant. Also, discharges of industrial wastes to storm sewers on the base were suspected.

In 1973 Hill Air Force Base commissioned a consultant study of the industrial discharges, and a pretreatment program was recommended. Before the water quality management program began, there were two unresolved issues relating to industrial waste disposal: 1) the appropriate degree of pretreatment to require, and 2) whether to issue an NPDES permit for the storm sewers on the base. These two issues depend on another consideration: applicable water quality standards.

The State of Utah has set uniform water quality standards, which require drinking water criteria for numerous pollutants, even for rivers that flow to the Great Salt Lake, such as Weber River. The Weber River Water Quality Planning Council worked with EPA Region VIII, the State, and the U.S. Air Force to settle these issues and achieve the implementation of pretreatment and stormwater regulatory programs on Hill Air Force Base.

Pretreatment Programs for Industrial Wastes

The Weber River Water Quality Planning Council and EPA Region VIII cooperated to win the support of the U.S. Air Force and the State of Utah for pretreatment limitations that they deemed reasonable. To meet the permit conditions set for industrial discharges, the Air Force has allocated $6 million for updating of its pretreatment facilities. The original consultant for the Air Force had proposed a $2.5 million pretreatment program. Consequently, the Air Force, which had obtained a Congressional appropriation for the initial amount, had to request additional funding to cover the cost of the facilities that were finally selected. Design of the pretreatment program is nearly completed, and construction will begin soon.

Regulatory Program for Stormwater Discharges

Water quality monitoring conducted under the 208 program proved that industrial wastes were being discharged into storm sewers on Hill Air Force Base. As a result of this water quality assessment, all accessible drains to the storm sewers were disconnected in the base buildings. However, the storm sewer network could not be completely controlled, and therefore the 208 agency convinced EPA Region VIII to issue the Air Force an NPDES permit for stormwater discharges. To verify that permit conditions are being met, the Davis County Health Department will conduct monitoring at a point just outside the base.

State Water Quality Standards Issues

In response to 208 planning by Weber River and other Utah areawide agencies, the State is revising its water quality standards this year to more closely reflect EPA criteria. The State has established a water quality standards review committee, composed of representatives of these areawide water quality management agencies.

When water quality management planning began in the Weber River area, the State Water Pollution Committee, due to its public health orientation, did not consider stormwater a pollution problem. Thanks to the efforts of the Weber River Water Quality Planning Council and other Utah areawide agencies, this Committee has reversed its policy. The Committee has recognized stormwater as a pollution source and is awaiting the completion of the Weber River 208 plan before setting State policy for stormwater pollution control.

Significance

This accomplishment is significant in three respects. First, the Weber River Water Quality Planning Council assessed the full extent of the water quality problem that industrial wastes from Hill Air Force Base posed. 208 monitoring identified direct industrial discharges to storm sewers, thereby strengthening EPA Region VIII's position in requiring stringent pretreatment and stormwater management programs.

Second, based on the water quality management agency's water quality analysis, the U.S. Air-Force agreed to construct a $6 million pretreatment system and to correct piping in the storm sewer network. In committing itself to this substantial financial investment, the Air Force has accepted the effluent limitations contained in the permits for these stormwater discharges and the pretreatment standards.

Finally, the Weber River 208 agency, supported by EPA Region VIII, convinced the State of Utah to undertake revision of its water quality standards, with the assistance of areawide agencies. Realizing that EPA will not fund construction grants at this time for treatment beyond the secondary level, unless needed to meet water quality standards or where cost-effective, Utah is placing increased emphasis on establishing relevant water quality criteria. In a major policy shift, the State of Utah has also recognized stormwater as a pollution source, thus assuring statewide supervision of this critical water quality problem.

Weber River Water Quality Planning Council (Weber River, Utah)

Performance Indicator: Enforcement of hazardous materials standards on an industrial park, as a result of water quality management technical assistance.

Background

The Freeport Distribution Center, formerly a navy depot, was converted into an industrial park with 200 industries. Water quality analysis by the Weber River Water Quality Planning Council indicated that industrial and chemical wastes and oil were being discharged into the storm sewers. 208 monitoring pinpointed the wastes, including toxic materials, that were involved.

Building Inspection

Based on this 208 generated water quality data, the water quality management agency contacted appropriate Federal and local agencies to halt these illegal activities. The EPA Emergency Response Staff, U.S. Coast Guard, county health department, and water quality management agency inspected each building in the Freeport Distribution Center. This search of Freeport tenants and industries was conducted utilizing EPA authority for hazardous materials regulation.

Significance

As a result of the water quality monitoring and site inspection, some industries have ceased discharging wastes into the storm sewers, and, alternatively, EPA has required that the dischargers apply for NPDES permits. These permits, when issued, will regulate the dischargers and may require that certain discharges cease.

EPA Region VIII has just completed a final report on the investigation, which documents the extent to which the water quality problem has been solved. Once compliance and/or enforcement action against recalcitrant industries has taken place, and the industrial wastes are being properly treated and disposed of, this performance indicator will become an accomplishment.

Teton County-Section 208 Planning Agency (Jackson, Wyoming)

Accomplishment: The U.S. Forest Service in the Bridger-Teton National Forest has expanded its nonpoint source control program to incorporate water quality considerations, as a result of 208 funded water quality analysis.

Background

The U.S. Forest Service, manages 76 percent of the land in Teton County. Over half of the $370,000 208 grant was devoted to water quality monitoring, and the Forest Service received $99,000 for investigations in the Bridger-Teton National Forest.

An extensive system of water quality monitoring stations was established to provide baseline data and to trace changes in water quality. Activities identified as creating water quality problems are: livestock grazing and range management, oil and gas exploration, recreation, timber harvesting, wildlife management, fire control, general construction activities, and special uses such as ski resorts and concessions.

This monitoring indicated that livestock grazing, range management, and oil and gas exploration pose the greatest actual or potential threats to water quality in the National Forest. To address these problems, the Forest Service staff proposed to reinforce their nonpoint source control program by modifying existing practices, adopting new practices, and developing standby practices that can be applied if the need arises. Reflecting a practical concern with implementation, the Supervisor of the Bridger-Teton National Forest incorporated these improved best management practices (BMPs) into their management system.

Significance

This accomplishment is significant in three respects. First, it represents the full cycle of problem definition, solution identification, and implementation of improved BMPs. The U.S. Forest Service modified existing controls to take greater account of water quality impacts and also adopted measures to prevent water pollution from new activities, particularly oil and gas exploration. Its monitoring program has been expanded to ensure detection of water quality problems and prompt remedial action.

Second, USFS implementation of improved management practices indicates a firm commitment to maintain high water quality in the National Forest. As the major landowner in the county, the Forest Service is a crucial participant in water quality management. Its support of the 208 program is evidenced by its comprehensive approach to nonpoint source control, aimed at both actual and potential polluting activities.

Finally, these hard outputs reflect strong cooperation between the U.S. Forest Service and the 208 program in Teton County. Water quality management funds and staff liaison enabled the Forest Service to furnish the technical assistance that addressed local nonpoint sources of water pollution. The water quality management program thus expedited the development of a more effective regulatory program to maintain high water quality in one of the nation's major natural resources.

Implementation

The Supervisor of the Bridger-Teton National Forest is implementing the following best management practices, which will be carried out by the U.S. Forest Service and, where applicable, its lessees. The Forest Service will exercise regulatory authority on its land and will continue to coordinate with the 208 planning agency. Increased operating costs associated with additional management practices will be absorbed by the USFS.

Adopted Best Management Practices (BMPs)

The BMPs for livestock grazing and range management are currently being carried out, because these are actual nonpoint sources of water pollution. In contrast, the BMPs for mineral resources exploration, which has not yet begun, will be applied when these anticipated activities are undertaken.

Livestock Grazing

1) Stabilization of streams through revegetation and, in the case of severely damaged areas, fencing off of stream banks. These measures, which prevent sedimentation and other pollution, enhance the streams for aquatic life.

2) Rest-rotation of cattle to permit revegetation of overgrazed land, supplemented by reseeding where necessary.

3) Application of the Channel Stability Rating procedure, currently used to develop a hydrologic inventory, to reduce the potential for channel and stream-bank damage. The procedure would help determine the allotment for sediment production in the range areas.

Range Management

1) Evaluation of hydrologic criteria and internal drainage features of the soil mantle, as well as soil characteristics, at each potential prescribed burn site.

2) Definition of optimum moisture and temperature levels for carrying out the vegetative objectives of prescribed burning, as part of determining whether soil conditions permit successful burning.

3) Evaluation of alternatives for sagebrush control in areas that contain aquatic resources. Herbicide spraying should only occur when other alternatives prove unfeasible and when it is demonstrated that aquatic life will not be endangered.

Mineral Resources Exploration

1) To reduce the potential for seepage from test drilling sites, a fluorescent tracing dye should be injected into each oil drilling settling pond. Periodic sampling of the stream water and testing by the National Forest water quality lab will permit rapid identification of leaking from these ponds. Immediate implementation of corrective measures at the drilling site should occur.

2) To minimize the possibility of contaminated groundwater reaching surface waters, the wells should be cased to a depth of no less than 200 feet below the elevation of the nearest stream.

3) To prevent leakage from settling ponds, sealing of the ponds should be stipulated where percolation testing reveals a permeable soil condition.

Other Activities

Continued monitoring of timber harvesting and recreational activities was suggested to identify any future deterioration of water quality. The Forest Service concluded that existing regulatory programs for wildlife management, fire control, general construction, and special uses currently appear adequate to preserve high water quality.

REGION IX

CALIFORNIA-NEVADA

Tahoe Regional Planning Agency (South Lake Tahoe, California)

Performance Indicator: Two counties are applying a "Handbook of Best Management Practices" which is part of the Lake Tahoe water quality management plan.

Background

Under California and Nevada law, all sewage and solid waste must be exported from the Tahoe Basin. Since these laws became effective in the early 1970's, it has become apparent to researchers, water quality regulatory agencies, and the general public, that erosion and storm water runoff pose the major remaining threat to water quality in Lake Tahoe.

The Tahoe Regional Planning Agency 208 planning effort has focused on (1) identifying erosion and storm water runoff problems, (2) selecting the most environmentally, economically, and socially acceptable methodology to abate erosion and storm water runoff problems, and (3) developing ordinances and other strategies to assure implementation of the selected erosion and storm water runoff control methodologies.

Best Management Practices Handbook

Once best management practices (BMPs) to control erosion and storm water runoff were identified, the water quality management staff prepared a "Handbook of Best Management Practices." The handbook explains recommended BMPs in detail. It also provides local governments and future development permittees in the Tahoe Basin with a comprehensive methodology for selecting structural and non-structural erosion and storm water runoff controls.

The handbook includes BMPs for construction, temporary and permanent soil and slope stabilization, and revegetation, among others. It also contains cost information and methodologies for soil loss prediction and for calculating runoff.

There are five counties in the Tahoe regional area. Two of these counties have already appropriated money specifically to implement the water quality management plan. Funding is designated for capital improvements, that is physical restoration of denuded areas, and for an expansion of county review procedures.

Significance

The Handbook of Best Management Practices includes detailed information on applying recommended BMPs. It provides a useful reference guide for local governments and developers. Many of the BMPs can be applied through expanding the criteria used to review development and construction projects and by providing more stringent review.

Two counties have already made the commitment to implement BMPs for construction and development through expanding their review process. They have also begun revegetation programs as recommended in the handbook.

State Department of Human Resources (Carson City, Nevada)

Performance Indicator: Development, through a 208 demonstration project, of an institutional, regulatory, and technical program to control erosion and runoff caused by land-disturbing activities in Nevada.

Background

A proposed program to improve water quality was developed under a 208 demonstration project by the designated state agency for Nevada. The two-year project was funded a year before the state-level water quality management program began, and was directed by a Sounding Board consisting of a State Assemblyman, the Governor's Press Secretary, the State Planning Coordinator, a county manager, and the Director of the State water quality management agency.

Significance

The proposed program to control the water quality impacts of land-disturbing activities is significant in two respects. First, a problem-solving approach was applied to perform an exhaustive analysis of all elements vital to program implementation. The results of this institutional, regulatory, and technical evaluation were: a nine-point early action program that could be initiated virtually immediately and a legislative action proposal that would be presented for adoption during the 1977 session of the state legislature.

Second, water quality was established as the major environmental goal of the program. The primary contributors to water pollution in Nevada - runoff and erosion - were targeted for corrective measures. To focus on this water quality impact, diverse sources of runoff and erosion were consolidated under the broad classification of land-disturbing activities. This classification includes the military, recreation, and transportation, as well as agriculture, construction, forestry, mining, stream modification, and urbanization.

REGION X

IDAHO

Ada/Canyon Waste Treatment Management Committee (Boise, Idaho)

Performance Indicator: Two local agencies are applying recommendations for stormwater control from a handbook prepared by the water quality management agency: "20 Ways to Manage Urban Stormwater".

Application of the Stormwater Control Handbook

The Ada/Canyon Waste Treatment Management Committee, representing two counties, has adopted a stormwater control handbook, "20 Ways to Manage Urban Stormwater", prepared by the 208 staff. Many recommendations from the handbook are being used by the Boise Building Department and the Ada County Building and Highway Department. The recommendations will become an integral element of the Ada County Building Code.

Panhandle Planning and Development Council (Coeur d'Alene, Idaho)

Accomplishment: Technical and financial assistance provided by the water quality management program and increased public involvement accelerated the implementation of a vessel discharge ban on Lakes Pend Oreille and Coeur d'Alene.

Background

In 1972, the Panhandle Health District (PHD) adopted an Environmental Health Code, which in part prohibits wastewater discharges into any stream or lake by vessels or floathouses (non-motorized watercraft used primarily for recreation). All watercraft are required to have sealed wastewater storage tanks that are serviced either by the owners or by privately or publicly operated pumping facilities and detention tanks. The wastewater is transported from the vessel for disposal either in private septic tanks (which are viewed as an interim solution) or municipal treatment plants.

While the Panhandle Health District had the legal authority to enforce this discharge ban, it lacked the requisite financial and citizen participation resources. The Panhandle Planning and Development Council, the areawide water quality management agency, provided the assistance necessary to achieve prompt compliance by floathouse owners. (The enforcement process initially focused on floathouses and is currently being extended to cover all other vessels.)

Technical Assistance

The Panhandle Planning and Development Council subcontracted with the Panhandle Health District to hire staff for the vessel discharge elimination project. This PHD staff inventoried the floathouses to determine their number and location, current wastewater facilities and on-shore disposal systems, suitability of adjacent land for disposal, and other features.

Public Involvement

The Panhandle Health District established a permit program for floathouses in June, 1976. The development of this permit program involved a citizen involvement process. Meetings were held with floathouse owners, in which the basic program, alternative solutions, compliance schedules and individual inspections were discussed. As a result of this public participation effort, the floathouse owners were informed of their obligations and the health district's permitting and monitoring procedures, and they worked with PHD staff to establish a mutually acceptable compliance schedule for correcting the discharge problem.

Significance

Water quality management program involvement accelerated the solving of this water pollution problem by an estimated seven to eight years.

All but 26 of 155 floathouses on Lakes Pend Oreille and Coeur d'Alene have taken corrective action on wastewater discharges and, accordingly, have received permits. This enthusiastic response reflects the favorable political climate that the water quality management program helped to cultivate in the Panhandle Health District. By delegating project responsibility to the agency charged with enforcing the Environmental Health Code and contributing expertise in citizen participation, the 208 agency expedited the development of a practical solution.

Panhandle Planning and Development Council (Coeur d'Alene, Idaho)

Performance Indicator: An intensive public involvement program led to formation of a lakes management association to support restoration and protection of a ten-lake complex.

Background

The natural beauty of these ten lakes and surrounding woodland and pastures has brought rapid ungoverned growth in the planning area. Septic tank leachate, erosion and sedimentation from cattle grazing and logging, and recreational misuse of the lakes and terrain have led to noticeable water quality degradation. Most of the land is privately owned. The water quality management agency has made a lakes management plan to deal with these problems, a top priority element of its areawide land use plan.

Public Involvement

To build support for a lakes management plan, the names of all residents in the watershed were compiled; and letters describing the problems were mailed out, with an invitation to attend public meetings to discuss remedial proposals. Of 700 residents invited, 200 turned out, and subsequent participation has been excellent.

A small number of the watershed residents had already formed ineffective management groups; they were encouraged to form a coalition. With the help of the 208 staff a large grass roots organization has been built around the coalition and a formal political lakes management association has been organized. Direct mailings and public gatherings helped achieve this interim goal. The 208 project manager has, by request, prepared a complete set of by-laws for the association, and there is sentiment favoring incorporation.

The association is expected to be instrumental in later adoption of sewage disposal and other land use regulations which will make up the comprehensive lakes management plan.

Significance

The water quality management staff identified the constituency for a lakes management program and began an active campaign to generate public involvement in program development. The water quality management staff organized existing citizen groups into one effective coalition, and this became a base for developing additional public support. The public interest was generated through the problem identification and listing of alternatives provided by the water quality management agency.

Panhandle Planning and Development Council (Coeur d'Alene, Idaho)

Performance Indicator: On the basis of water quality management studies, the local Health District has adopted land use controls to mitigate and prevent further contamination of a major interstate aquifer.

Background

The size and importance of the Rathdrum aquifer, which spans a 2-state area, and underlies a great number of ill-maintained septic tanks, made it a top priority water quality management survey item. Analyses revealed high nitrate levels, and in depth studies to define the scope of the problem are in progress by the Army Corps of Engineers and the U.S. Geological Survey (USGS) as subcontractors to the 208 agency.

Management

A moratorium has been imposed on all new septic tanks and subdivisions by Health District officials. They have also adopted a set of land use policies which will restrict on-site sewage disposal in incorporated areas. Under the new regulations, individual septic tanks in unincorporated areas must be confined to lots of 5 or more acres and cluster septic systems may be used on one to five acre lots.

Identification of the nitrate problem by the Panhandle Health District has led to a movement by some environmental groups to have EPA declare the Rathdrum aquifer a "sole source aquifer" under the "Safe Drinking Water Act". Interstate cooperation is needed for this aspect of the program and that is currently being sought by 208 staff and Health District personnel.

Significance

Policies adopted by the Health District will direct development to already or soon to be sewered areas and confine septic systems to land types which can support them. These actions will help to define 201 facilities planning needs for the Panhandle area. Designation as a "sole source aquifer" will allow for more comprehensive protection of the Rathdrum aquifer.

Southeastern Idaho Council of Governments (Pocatello, Idaho)

Performance Indicator: The water quality management agency assisted in developing a land application system for industrial and municipal wastewater effluent, which, when implemented, will allow for reuse of valuable water and nutrient resources.

Background

The Portneuf River at Pocatello, Idaho is water quality limited. There are three significant dischargers in the Pocatello area, the municipal sewage treatment plant and two phosphorous processing industries. All three dischargers were violating some constituent limits in their permits and had to eliminate permit violations. The Southeastern Idaho Council of Governments, through the 208 program, initiated a "Joint Wastewater Treatment Feasibility Study" to develop a system for joint municipal-industrial treatment.

Technical Solution

Land application of treated wastewater effluent from one of the industries, J. R. Simplot, a fertilizer manufacturer, and the municipal treatment plant was chosen as the most desirable solution. (The other industry decided to deal with its treatment problem independently.) Land application is the least costly joint treatment alternative for Pocatello and, in addition, offers the opportunity to reuse water and nutrient resources. The Pocatello area is primarily agricultural and has a low average annual rainfall. Local farmers have indicated their interest in buying the wastewater irrigant.

Development of the land application system at the 7,000 acre site finally chosen will cost approximately $6 million. This cost is for a full capacity (year-round) system including wastewater transmission pipes, sprinkler irrigation systems, on-site storage lagoons or resource recovery impoundments and site preparation. Pocatello and Simplot intend to finance the project without Federal assistance. The project is planned in two phases. When the first phase is completed, the city can begin collecting revenues from the sale of the wastewater irrigant. The first phase of the project, at an anticipated cost of $3 million, will include year-round collection of all effluent from the industry and collection from the municipal plant in all but the winter months. There will be only summer irrigation during this phase. Phase two will provide for year-round collection of wastewater effluent and growing season irrigation.

Preliminary agreements have been made concerning management of the system, funding, and shared costs between Pocatello and Simplot. Efforts are now directed at executing contracts between the industry and Pocatello to finalize construction and management arrangements.

Significance

The joint wastewater treatment system is significant for two reasons. First, the Southeastern Idaho Council of Governments recognized that the 208 program could provide the impetus, through funding and a central coordinative role, to deal with serious and long standing wastewater treatment problems. The project has led to an independent municipal-industrial wastewater management process which is carried out by the city and the participating industry.

When the completed system becomes operational, it will eliminate significant wastewater discharges from the Portneuf River. The key to eliminating these discharges is a relatively low cost resource recovery project that offers local farmers a highly desirable product and a one-step process for irrigation and fertilizer application.

Columbia Regional Association of Governments (Portland, Oregon)

Performance Indicator: The water quality management agency has prepared, and the State has adopted, a land use framework which defines areas in which new treatment facilities will be allowed.

Background

The tri-county area for which Columbia Regional Association of Governments (CRAG) has planning responsibility contains four major streams, three of which are considered clean. Efforts to maintain clean water in this region have been ongoing since the 1950's. Nevertheless, strong growth pressures suggest population doubling from 1 million to 2 million people in the next 20 years. Low dissolved oxygen levels in the Willamette River already affect spawning salmon. In view of serious combined sewer overflows into the Willamette River, considerable contributions from urban storm runoff, and future growth expectations, the water quality management agency saw a need for a comprehensive waste management plan to deal with these problems. The current goal of the water quality management agency is to develop a long-range master plan for sewage collection and treatment for the tri-county area. Pursuant to this goal, a land use framework is an important milestone.

Management

The land use framework classifies the entire area into urban, rural and natural resources districts and sub-classifies the region into bounded facility service areas based on population and employment projections. Using the delineated Resource Districts and facility service areas and the study of alternatives to conventional treatment facilities, the water quality management agency designated those areas in the land use framework which are suitable for treatment facilities. This framework has been adopted by the State requisite to EPA approval of facilities plans in the area. Contracts have been made between Washington County and three of its municipalities with respect to future sewering plans following the land use framework.

Significance

The land use framework is the result of carefully concerted efforts by the water quality management agency with the U.S. Geological Survey, the Army Corps of Engineers, local citizens groups, and local, county and state politicians. This framework is a controlled growth plan which will allow for staged growth within a limited area and development of adequate wastewater treatment facilities. Adoption of the land use framework is the first step toward implementation of a comprehensive waste management plan.

Lane Council of Governments (Eugene, Oregon)

Accomplishment: The water quality management agency achieved the development of a cost-effective, regional wastewater treatment facility and the formation of a sewerage management agency for Lane County, Springfield, and Eugene, Oregon.

Overview

In the Springfield-Eugene area, 208 financial and technical assistance and political mediation realized a $3 million cost savings through regionalization of sewage treatment facilities. Economic pressure from the State Department of Environmental Quality, in the form of potential withdrawal of Construction Grants eligibility, was also a major factor. The political dimension of this water quality management solution to a point source problem is particularly significant, because it was the key to implementing the technical proposal.

The Technical Solution

Due to past and projected regional growth, the two existing wastewater treatment facilities in the area were approaching capacity. In addition, the level of treatment that the plants provided was inadequate to meet the water quality goals, and infiltration/inflow problems were detected.

To improve wastewater treatment service and consequently water quality in the region, the Lane Council of Governments (L-COG) incorporated a facility plan into its water quality management program.

The water quality management agency funded a consultant study to update and complete the initial facility planning for the metropolitan area. This study revised the original wastewater treatment alternatives and recommended a $72 million regional system, which cost $3 million less than the two facilities advocated by Springfield.

To fulfill the requirements for a Step II Construction Grant, the consultant study formulated financial and managerial arrangements for the proposed treatment works. L-COG adopted the consultant proposal to establish a Metropolitan Wastewater Management Commission to construct, operate, and maintain the regional facility.

This regional wastewater treatment and management alternative represent the culmination of facility planning by the Springfield-Eugene water quality management agency. Antecedent products that L-COG generated to guide areawide point source pollution control include: population projections that all municipalities in the region have adopted, wasteload allocations, and urban growth boundaries that are keyed to adequate sewage service. Thus the 208 agency developed the analytical framework for 201 activities in the metropolitan area.

The Political Solution

Previous facility planning for the metropolitan area, whose principal jurisdictions are Lane County and the cities of Springfield and Eugene, had been stalled by an unresolved disagreement. Springfield favored improving the two existing plants, which were located in the two cities, rather than expanding the downstream plant in Eugene to provide regional service. In contrast, Lane County, Eugene, and the other affected municipalities favored the single areawide facility.

The 208 program settled this political dispute through careful and astute mediation. As the representative of all municipalities in the area, the Lane Council of Governments furnished a neutral forum for political discussion and persuasion. Sensitized to the concerns of the affected local governments, the water quality management staff was able to convince them to form a regional system.

L-COG's efforts to resolve the differences between Springfield and Eugene were strengthened by Oregon's Construction Grants priority list. The State set a May 1977 deadline for delineation of service area boundaries and passage of a bond issue. Without these results, the metropolitan area would lose its rating and eligibility for Federal funds. This State economic incentive and areawide political mediation produced Springfield's support for regionalization of wastewater treatment facilities.

As a result, the three jurisdictions approved the cost-effective regional system and established the Metropolitan Wastewater

Management Commission in February 1977. In recognition of this technical and political success, the Governor of Oregon formally designated this commission as the point source management agency for the Springfield-Eugene area in April 1977.

The Broader Significance

This accomplishment demonstrates two forms of mutual assistance: between the 201 and 208 programs and between State and regional levels of government. Oregon's 201 program cooperated to implement an environmentally and economically beneficial point source solution.

On the one hand, the water quality management agency provided a technical and political framework for Construction Grants activities in the metropolitan area. On the other hand, the State 201 agency furnished the economic incentive that made the regional solution too attractive to reject. This cooperation between 201 and 208, and the State and the Council of Governments has expedited improving water quality in the Springfield-Eugene area.

Lane Council of Governments (Eugene, Oregon)

Performance Indicator: Problem identification by the 208 program led to a moratorium on septic tank installation and adoption of an operations and maintenance ordinance for existing on-site systems.

Background

Discovery of groundwater contamination beneath the town of Coburg, Oregon led to the conclusion that poorly maintained septic tanks were the primary source of pollution.

Regulatory Solution

Analyses done for the 208 program revealed that due to the soil composition in the area, no additional on-site disposal units could be accommodated without a serious threat to groundwater. As a result of these analyses, the county instituted a moratorium on all new septic tanks until agreement can be reached to construct a regional sewage treatment plant to serve this area. This effectively means no new development in Coburg and is an indication of the county's commitment to development of a regional system. The county has also adopted an ordinance instituting a mandatory inspection and maintenance program. This is accompanied by a nuisance ordinance which authorizes forced maintenance in case of neglect.

Management

The county management program will educate the public about proper use of septic systems, provide periodic inspections, and require pumping and repair when necessary. The nuisance ordinance sanctioning municipal service with mandatory reimbursement by non-compliant homeowners is expected to strengthen participation.

Significance

The water quality management agency, through identification of a serious water quality problem, was influential in securing strong action both to prevent further groundwater contamination from septic systems and to correct existing septic problems. The moratorium on new development and adoption of the nuisance ordinance are sanctions which will serve as powerful incentives to solve existing problems and develop a regional facility plan.

Mid Willamette Valley Council of Governments (Salem, Oregon)

Accomplishment: Salem, Oregon, with assistance from the water quality management agency, adopted an Industrial Waste Ordinance which regulates industrial wastes in the sewage treatment system and discharges into storm sewers.

Background

The Salem urban area has 16 food processing plants and nine other industries discharging into the regional Willow Lake Sewage Treatment Plant. The food processing plants generally have seasonal operations with extremely high volumes and organic content during summer and early fall.

The Point Source Areawide Technical Advisory Committee (ATAC) and the water quality management staff gave a high priority to an industrial study program to address alternatives for industrial waste treatment and disposal and industrial pretreatment requirements. The ATAC includes representatives for four industries and State and Federal regulatory agencies and public works directors from all major cities in the area.

Development of an Ordinance

There were two immediate problems to address. The first was to set daily discharge limits for all industries discharging into the Willow Creek Plant, to ensure a reserve capacity for residential and commercial growth. This is particularly important because in a year with a large harvest, food processing discharges could easily exceed the reserve capacity of the treatment plant for a two to three month period. The second problem was to control industrial discharges into the city's storm sewers.

The water quality management staff recommended an Industrial Waste Ordinance for Salem which would require industries to install pretreatment equipment by limiting allowable industrial discharges into the municipal system. After conducting independent data collection and analysis, Salem adopted the Industrial Waste Ordinance which requires a permit specifying the daily discharge limit for each industry. It also sets toxic effluent standards and restricts discharges into storm sewers unless unavoidable.

Significance

The water quality management staff and the Areawide Technical Advisory Committee dealt with two pressing problems facing the city of Salem. The Industrial Waste Ordinance which they developed and the city adopted will protect against seasonal overflows in the Willow Lake Sewage Treatment Plant. This protects water in the summer and early fall when overflows were likely to occur and reserves capacity to accommodate growth. The ordinance also restricts industrial discharges into storm sewers. Enforcement of this provision will protect against dumping untreated wastes into the river.

Mid Willamette Valley Council of Governments (Salem, Oregon)

Performance Indicator: In order to standardize a regional base for facilities planning, the Mid Willamette Valley Council of Governments developed service boundaries and assisted in developing regional projections for the 33 cities in the area.

Background

When the Mid Willamette 208 program began in 1975, some facilities planning in the area was already under way. There are 33 cities in the area and population and wasteload projections were being prepared independently for individual 201 plans using a variety of methodologies. In addition, delineation of service area boundaries was available for only a few cities.

Population Projections

To ensure a standard regional base for facilities planning, Mid Willamette Valley Council of Governments' highest priority interim output was achieving acceptance of regional population and wasteload projections. The water quality management staff developed uniform methodologies for making these projections. They then contacted county planning departments to assist in developing the projections and obtaining approval from each city. All 33 cities have approved population and wasteload projections lower than original estimates.

Urban Service Boundaries

The 1973 Land Use Act in Oregon requires each city to establish a comprehensive plan and urban growth boundaries to provide for an orderly transition from rural to urban land use. In most cases, these comprehensive plans are not completed. A goal of the water quality management agency was to provide a consistent regional approach to delineation of urban service boundaries for the interim period prior to completion of comprehensive plans. The water quality management agency, in cooperation with county planning departments, established urban service boundaries for each incorporated city. Each city approved the boundaries with the understanding that minor modifications could be made later. The boundaries established by this process are suitable for facility planning.

Significance

Delineation of urban service boundaries is important for several reasons. Most significantly, the boundaries define growth areas. Sewer service to currently planned facilities will not be extended past these boundaries. This will in effect limit urban sprawl.

The urban service boundaries also define the sphere of influence between the cities and counties for providing future urban services. Preparation of these boundaries initiated coordination between two major state agencies, the Department of Environmental Quality, regulating sewer facilities, and the Land Conservation and Development Commission, which regulates land area planning.

Taken together, delineation of urban service areas and adoption of population and wasteload projections developed through standard methodologies form a sound base for developing cost effective and regionally compatible sewage treatment facilities.

Municipality of Metropolitan Seattle (Seattle, Washington)

Performance Indicator: King County and the city of Bothell have begun implementation of a drainage management plan for the Juanita Creek basin.

Background

Studies done in the Seattle metropolitan area prior to the 208 program identified urban storm runoff as a significant water quality problem and emphasized the need for drainage controls. The city of Bellevue began considering a proposal to set up a Drainage Utility District in the early 1970's. The utility would have power to levy a service charge on individual property owners. The proposal generated a long controversy and high public involvement before it was approved by referendum in 1976. Bellevue's experiences raised regional consciousness of drainage issues.

Juanita Creek Study

The water quality management program initiated a demonstration study on Juanita Creek to develop a drainage management program for the creek basin. The management program will be used as a technical and institutional-regulatory model for developing drainage management plans for other sub-basins of the Green River in the Seattle metropolitan area. The King County Public Works Department is conducting the study, which covers parts of the cities of Bothell and Kirkland and unincorporated land under the jurisdiction of King County.

Regulatory Program

The drainage program for Juanita Creek involves regulatory and structural elements. The most important regulatory control is a stormwater drainage ordinance. King County has had an urban storm drainage ordinance since 1974. This ordinance requires that all new developments control runoff, so that there is no more runoff after construction than before. Although the ordinance does not specify the methods for controlling runoff, it stipulates that the county will take over maintenance and operation of holding ponds or other facilities three years after developers install them.

The city of Bothell has adopted an urban storm drainage ordinance which contains essentially the same requirements as the King County law. This city ordinance was prepared with 208 staff assistance. Kirkland does not yet have a similar law.

Structural Controls

The physical design element in the management plan consists of approximately 75 holding ponds throughout the Juanita Creek drainage area. King County, Bothell and Kirkland have signed an interlocal agreement committing them to jointly implement the management plan.

King County has taken the first step to implement the physical design plan. The county has appropriated $150,000 to construct a holding pond on land which was recently donated to the county for a park.

The county Public Works Department is advising developers on compliance with the runoff control ordinance. County officials hope to convince groups of developers to join together to construct regional holding ponds on sites identified in the physical plan. Such joint projects could save construction costs for developers and operation and maintenance costs for the city.

Areawide Drainage Plans

Seattle Metro intends to develop drainage management plans by sub-basin areas. The Juanita Creek Basin is only part of the local sub-basin. Implementation costs, mainly for land aquisition and construction, are estimated at $3 million to $5 million for one sub-basin. One means of providing at least part of the necessary funding is for other cities to set up drainage utilities with billing power, as Bellevue has done. The water quality management agency has completed a political case study on Bellevue's drainage utility. The case study analyzes the political and public involvement experiences of Bellevue. It is being widely used by other cities in the planning area considering creation of a drainage utility.

Significance

Data collection and analysis conducted before the water quality management program began identified urban storm runoff as a significant problem.

The water quality management agency could therefore concentrate on finding solutions. The agency prepared a drainage management plan for the Juanita Creek basin, as a demonstration study for the area. It combines structural solutions to existing problems with a regulatory program and review procedures to prevent future problems. In addition, measures taken to comply with the urban storm drainage ordinances in King County and Bothell may contribute to developing the holding pond system which is the structural plan.

Bothell's drainage ordinance and King County's $150,000 appropriation for construction of a holding pond are significant steps to implementing the drainage management plan for Juanita Creek.

The two essential elements which are needed to implement drainage plans throughout the area are a storm drainage ordinance and an approved structural plan with a funding mechanism. Creation of drainage utilities seems to be the best alternative for providing revenues. The water quality management agency is applying the lessons learned in Bellevue to smooth the approval process for drainage utilities in other cities.

Regional Planning Council of Clark County (Vancouver, Wash.)

Performance Indicator: Identification through the 208 program of major sources of water pollution in numerous Clark County streams has led to voluntary institution of BMPs.

Background

The Clark County region encompasses many important streams and lakes - most of which do not meet State water quality standards. An aggressive program to locate all major sources of pollution has identified agriculture as a major source. Under state permitting standards, confined lot systems can be required to get NPDES permits. Many farmers are voluntarily changing their practices to eliminate discharges.

Building Public Support

Most of the pollution sources were found to be large agricultural operations. The water quality management agency developed agricultural BMPs and asked local conservation districts for assistance in gaining local support for instituting BMPs. District conservationists contacted farmers individually to explain the value of recommended management practices and received commitments from many farm owners to implement BMPs. The response to the recommendations has been good in the farming community. For example, agricultural nutrients and BCOD from two major sources have long deteriorated water quality in Clacamas Lake. Both sources have been put on compliance schedules which 208 agency officials expect to result in improvement of "Class C" quality water to "Class A" status in several years.

Funding

Financial support for agricultural pollution abatement programs is being obtained from the U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service, the State government, and a county property tax, with local conservation districts playing a key role in coordinating this process.

Significance

The water quality management agency recognizes that the local Conservation Districts have the support and confidence of the farming community. District conservationists, therefore, were asked to play the major role in spreading the word about the 208 program and educating farmers on proposed BMPs. The 208 program is also building local support by offering farmers a voluntary alternative to NPDES permitting requirements. The recommended BMPs can be applied more effectively because a variety of funding sources are being tapped and existing Conservation Districts will simply expand their current responsibility to coordinate funding.

Snohomish County Metropolitan Municipal Corporation (Everett, Wash.)

Performance Indicator: 208 staff, working with the Soil Conservation Service and Agricultural Experiment Station technical advisors, proposed and secured acceptance of a set of best management practices to correct serious nonpoint source problems from beef and dairy cattle operations.

Background

Snohomish and King counties in west central Washington state are predominantly agricultural, with about 170 separate dairy farms and some beef cattle farming. Monitoring conducted for the 208 program identified feedlots and dairy farming operations as major contributors to agriculture nonpoint source problems.

Building Public Support

A Washington State University Extension Service technician on the 208 staff was instrumental in formulating nonpoint source remedial strategies. He and 208 staff members first compiled a "state-of-the-art" BMP manual, with input from local farmers. The 208 staff contacted farmers known for their agricultural leadership experience who agreed to promote the BMPs, with notable success. One indication of the interest generated was that some farmers actually came to the water quality management agency seeking advice on how to improve their farming operations. Recommended BMPs have been initiated on many farms.

An ongoing monitoring system got under way with initial implementation of BMPs. Early data from the system suggest a significant potential for improved water quality.

Management Objective

The water quality management agency has developed a combination voluntary and regulatory program. The voluntary program is based upon memoranda of understanding, which have been signed between Shomet and the Snohomish and King County Conservation Districts. The regulatory aspect of the program relies on existing authority of relevant Health Districts and the State Department of Ecology.

Significance

By involving local farmers in choosing BMPs and requesting their assistance to promote widespread application of the management practices, the 208 agency is developing a good base of support for voluntary implementation. A monitoring system is already set up to measure effectiveness of the initially applied BMPs. Results of the monitoring hopefully will encourage wider acceptance. A regulatory backup program to supplement voluntary compliance is being developed.

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Agricultural Non-Point Sources

WI	Dane County Regional Planning Commission	Acc.	40-41
MONT.	Lewis and Clark County Conservation District	Acc.	53-55
WYO.	Teton County-Section 208 Planning Agency	Acc.	69-71
WASH.	Regional Planning Council of Clark County	P.I.	90-91
	Snohomish County Metropolitan Municipal Corp.	P.I.	91-92

Construction and Related Non-Point Sources

TENN.	Chattanooga Area Regional Council of Govts.	P.I.	35
MONT.	Lewis and Clark County Conservation District	Acc.	53-55
CALIF-NEV.	Tahoe Regional Planning Agency	P.I.	72-73

Development Pressures on Water Quality

ME	Southern Kennebec Valley Regional Planning Commission	Acc.	3-4
ALA.	South Alabama Regional Planning Commission	Acc.	24-26
FLA.	Central Florida Regional Planning Council	Acc.	27
TENN.	First Tennessee-Virginia Development District	P.I.	38
WI	Wisconsin Department of Natural Resources	P.I., P.I.	43-44 44-45
UTAH	Southeastern Association of Governments	Acc.	60-62
WYO.	Teton County-Section 208 Planning Agency	Acc.	69-71
ORE.	Columbia Regional Council of Governments	P.I.	81-82
	Mid Willamette Valley Council of Governments	P.I.	86-87

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MA	Southeastern Regional Planning and Economic Development District	P.I.	15-16
DEL.	New Castle County Areawide Waste Treatment Management Planning Agency	P.I.	21-23
ALA.	South Alabama Regional Planning Commission	Acc.	24-26
TENN.	First Tennessee-Virginia Development District	P.I., P.I.	38 38-39
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ORE.	Mid Willamette Valley Council of Governments	Acc.	85-86

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	Old Colony Planning Council	Acc.	14
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		P.I.	76-78

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NJ	Middlesex County Planning Board	P.I.	17-18

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	Southern Kennebec Valley Regional Planning Commission/Greater Portland Council of Govts.	P.I.	4-5
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DEL.	New Castle County Areawide Waste Treatment Management Planning Agency	Acc.	21-23
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FLA.	Central Florida Regional Planning Council	Acc.	27
TENN.	Knoxville-Knox County Metro Planning Commission	Acc.	35-36
	First Tennessee-Virginia Development District	Acc.	36-37
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WI	Southeastern Wisconsin Regional Planning Commission	Acc.	42-43
	Wisconsin Department of Natural Resources	P.I.	43-44
TX	North Central Texas Council of Governments	Acc.	48-50
COLO.	Larimer-Weld Regional Council of Governments	P.I.	51-52
UTAH	Mountainland Association of Governments	Acc.	58-60
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IDAHO	Southeast Idaho Council of Governments	P.I.	79-80
ORE.	Columbia Regional Association of Governments	P.I.	81-82
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	Mid Willamette Valley Council of Governments	Acc.	85-86
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	Southern Kennebec Valley Regional Planning Commission/Greater Portland Council of Govts.	P.I.	4-6
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ALA	South Alabama Regional Planning Commission	Acc.	24-26
FLA	Central Florida Regional Planning Council	Acc.	27
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TX	North Central Texas Council of Governments	Acc.	48-50
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ORE	Columbia Regional Association of Governments	P.I.	81-82

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SD	Sixth District Council of Local Governments	Acc.	56-57

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MA	Old Colony Planning Council	P.I.	14-15
FLA	Leon County Planning Department	P.I.	32-34
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		Acc.	65-67
CALIF-NEV	Tahoe Regional Planning Agency	P.I.	72-73
IDAHO	Ada/Canyon Waste Treatment Management Committee	P.I.	75
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